

Virginia Wildlife

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Virginia Wildlife

*A Monthly Magazine Dedicated to the
Conservation, Restoration, and Wise Use of
Virginia's Wildlife and Related Natural Resources,
and to the Betterment of Hunting, Fishing and
Outdoor Recreation in Virginia*

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PUBLICATION OFFICE: Commission of Game and Inland Fisheries, 7 North Second St., Richmond 13, Va.

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COVER: With dogwoods in bloom and trout season open, what youngster wouldn't like to take his fishing pole and a can of worms and head for his favorite mountain stream? Commission photo by Kesteloo.

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Do Unto Others . . .

A Timely Guideline to Today's Outdoor Recreationists

(Editor's Note: This editorial appeared a number of years ago in material sent to members of the Outdoor Writers Association of America. With spring already here and millions again seeking outdoor recreation, we each need to re-examine our code of outdoor behavior. As Mr. Ford says, the old rule of Do Unto Others is hard to beat.)

SINCE those days when legendary characters flew about on fleecy clouds and rode into the camp of the enemy on hurtling bolts of lightning there have been millions upon millions of words of advice written by countless wise men. On clay tablets of the bearded ancients, on crinkled parchments and yellowed sheepskins, and from the days of bludgeon-carrying cave dwellers to the present when prophets, forecasters and soothsayers hand out advice over the bargain counter for a fee, have appeared words intended to counsel others.

But, with all these words that lighten one's cares or guide one's footsteps, either wisely or unwisely, there have been none to come within a hairbreadth of those that appeared amongst nine other sentences and which a blasphemous and selfish world has seemingly forgotten. Commanding in their directness, appealing in their forthrightness, they are, in our modern words, "Do unto others as you would have them do unto you."

No more simple appeal, no more direct command to let one's conscience guide man in his daily acts, in his attitude toward others and the things that make up this world has ever been penned on paper, scratched on clay or cut into stone.

These words apply to the denizens of the wild, the trees of the forest and the waters of the stream—the things that have been placed in our care by a benevolent Master for our use, not the disgraceful abuse which has characterized our misuse of these natural resources with which our land is blessed.

These words mean to hunt your game clean, so there will be some left for your fellow hunter, for your children and your children's children; to fish in the same manner; to keep your streams clean as God intended them to be; and to handle your forest in such manner that the accusing words "handled unwisely" may never be written against your good name. Do unto the forests, the things of the forest, and the streams, and the things of the stream, that which you want written in golden, not accusing, words on your record. Man may appeal against the sentences of judges, but no man can appeal against the sentence of his own conscience.—TOM FORD

Votes For Brown Trout

IT WAS with extreme delight that I read in your February issue that the Commission has decided to release some 15,000 brown trout in Virginia waters. This is, in my opinion, a milestone in improving the trout program in the Old Dominion.

As most every Virginia trout fisherman will admit, far too many stocked trout, in previous years, have been taken, too fast. I have been told the brown trout is one of the more difficult to catch. Therefore, this fish should provide anglers with good fishing long after the season opens. I understand too that the brownie is a top water feeder and should provide excellent fly fishing.

My congratulations and thanks go to the Commission. I hope this experiment proves successful.

Ronald Shortridge
Arlington, Virginia

New Money Source Suggested

IN VIEW of what has already happened to our earthly heritage and what is happening daily, the only effective way we can save our wilderness areas is to establish a system of preserves. Certain private organizations are doing yeoman work in that regard, but their capabilities are limited. The State of Virginia should be proud that it has established its first inviolate preserve on the Eastern Shore, where the new bridge-tunnel will tremendously change what has been one of the most charming rural areas in eastern America. May many more shortly follow!

Millions of citizens, other than hunters and fishermen, find much needed heartsease outdoors. All should contribute towards ensuring that there will always be wilderness to which we can retreat for that unique balm to the spirit and soul only communion with Nature can give.

I know nothing of the legalisms involved, but since the automobile is the chief means of access to the wilderness, a one dollar surcharge to the purchase of license plates would break no one, but could immediately create a substantial fund to be earmarked for the purchase and maintenance of public areas.

If legal obstacles exist to implementing this suggestion, then surely the experts can come up with other ideas. The important thing is that we have a tremendous responsibility to preserve the choicest pieces of our earth to hand down to our descendants, and more of us should participate in this. What's more, I believe most of us want to participate more than we do now.

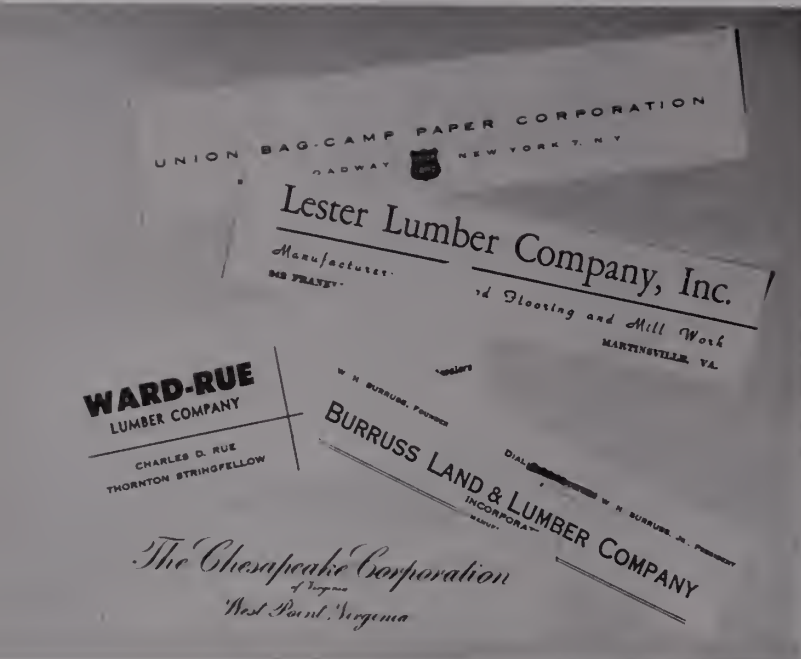
Leonard J. Uttal
Madison Heights, Virginia

How Virginia Lumbermen Provide Public Hunting

By STUART P. DAVEY

Staff Assistant

Virginia Commission of Game and Inland Fisheries



Commission Photo by Harrison

These companies and three other private landowners have agreed to open their lands in Virginia to public hunting.

EARLY 1961 finds most of us and millions of others around the globe eager and yet hesitant to charge into the sixties, a decade so full of promises of technological advances, of more material goods, of higher standards of living—and yes, even a possibility of getting along with our fellow man. Heavily laden, however, are the years ahead with threats of open conflict between the ideologists dominant today, the loss of our civilization as we know it, another dark age, all to pass perhaps before men learn to live as brothers.

In the light of such complexities of present day living, this topic, "How Virginia Lumbermen Provide Public Hunting," seems rather remote; but it is not! Even though the dominant motivation in our every day is and ever has been survival, we have in America a new nation, the dynamic remains of a pioneering spirit, the desire to return to the land, and the freedom to do so.

Hunting and fishing have vanished largely as vocations but have certainly entered their golden years as avocations. Much of this is due to man's inner spirit, hard to define, that demands his return to nature for re-creation. Closely allied reasons are the increased opportunities due to shorter work weeks, faster transportation and the wise use of the natural resource. In Virginia today, roughly 10% of the population hunt each year and about 20% fish. This means that nearly 800,000 persons in the state participate in these sports; it also means a one hundred million dollar business to the Commonwealth. The remainder of this century may find these figures looking rather minute. Beyond that time, public hunting may or may not fade away.

If we concede that the desire to hunt is present and growing—and that it is a healthful and stimulating sport, what can be done on its behalf?

Wildlife is qualified property in America; i.e., it belongs to the public but is held in trust by the state. In Virginia, the Commission of Game and Inland Fisheries has been assigned the responsibilities for the protection, perpetuation and wise management of the wildlife resource.

Adapted from an address delivered to Third Annual Convention, Lumber Manufacturers' Association of Virginia, Inc., January 28, 1961, Richmond.

Stripped to the bare essentials, hunting involves a place to go, something to pursue that is classed as game, a framework of seasons and bag limits that permits the harvest of the annual crop without damage to the brood stock, and the enforcement of these regulations plus the year around protection of the game against those who would take more than their share. It is as simple as that.

The Commission can influence the desire to go hunting in a minor way but its major influence is in the enforcement of the laws and regulations it promulgates, the technical assistance and know-how in managing the various species throughout the state and in the research and development for management on public hunting lands.

All of these are essential but as the population becomes more urban, these influences will grow to be insignificant unless there remains, "a place to go."

The Commission has and will continue to purchase key acreage for public recreational areas; even though such will be definitely limited due to availability and cost. To date the Commission has 64,000 acres of such property.

The Commission is also actively managing wildlife on other government lands; 40,000 acres in state forests, 1,500,000 acres in national forests and on 183,000 acres of other federal lands, but this is just about all there is, there isn't much more. All together, the public hunting lands had risen to about 1,800,000 acres up to two years ago—a significant figure but still only about 7% of the state's total. And, too, the great majority of that was in the national forest areas.

Faced with the growing demands for recreation and the fact that land area cannot expand, but in truth is becoming more scarce per person, the Commission commenced contact of large private landowners with the proposition that they open their lands to public hunting.

This was not a new idea because many areas in the country had already experienced it. In fact, a 1960 survey made by the American Forest Products Industries found that over 50 million acres of commercial timberland in the nation were open to public hunting. Also, it is a fact that thousands of acres of private timberlands had been and are open to the public in Virginia under various leases and permits.

Many of Virginia's timber companies allow the public to hunt their lands merely for the asking while others lease to hunt clubs. It was a new slant in Virginia, however, to have the Commission and landowner sign a cooperative agreement which spelled out what each was to do to promote game management on these valuable forest lands and to protect the prime forest crop too.

It now appears that the basic desires of corporations to voluntarily become involved with the public use of their lands arises from two areas. One is obvious and concerns self-preservation in matters of fire loss, theft, etc. The other, more subtle but becoming more evident, relates to their growing awareness of responsibility in natural resource management and recreation. The period of "cut out and get out" or "clear cut and burn" in a land of plenty has necessarily changed to a time for acquisition and wise use and also the realization that a King's Forest is often less popular now than in the day of Robin Hood.

Some of these owners know better than we what the final motivation was in their case but the cooperation has been very gratifying to us and the public and we can assure them we are going to do our best to protect their interests at all times.

In 1958, Union Bag-Camp Paper Corp. opened 15,000 acres in Brunswick County. Since then, agreements have been signed with Lester Lumber Co. for 3,800 acres in Henry County, with Ward-Rue for 8,500 acres and Aylor-Berry for 500 acres in Madison and Greene Counties, with Fairy Stone Farms for 6,000 acres in Patrick and Henry Counties, with Lehigh Portland Cement for 6,100 acres in Augusta and Rockbridge Counties, with Chesapeake Corp. for 5,800 acres in Surry, Bedford and Campbell Counties and, just recently, with W. H. Burruss Lumber Co. for 2,700 acres in Bedford County. In this short time, over 48,000 acres of private lands have been opened to public hunting—a million dollars could not buy it.

What does the agreement say? There is no fine print and at the beginning there is a simple statement to the effect that both parties are interested in the development and harvesting of the wildlife resource on these lands, and in protecting these lands from fire and timber trespass. The owner agrees to permit hunting by those properly licensed under the existing regulations and laws. He further agrees to make such lands available for wildlife habitat developments that do not interfere with normal timber production or the interests of the owner.

The Commission agrees to permit hunting for the continuance of favorable public relations, to develop such lands as might be available for wildlife, using an annual work plan approved by both parties, and to assign personnel to the extent of its capacity to patrol the lands during hunting season and during periods of high fire danger.

It further states that it is mutually understood that the primary interest of the owner must be the prevention of forest fire and timber stealing and to foster good public relations; also that the Commission's efforts will be comparable to that expended on nearby or similar areas. Agreements are signed for a three-year period.

Varying with the site, food plantings are made, rights-of-way planted, trails maintained and marked and other game management practices completed. All this raises the land's capacity for carrying game and also makes the game more available to the sportsmen.

Hunter use of the areas varies. It depends somewhat upon the area's proximity to population centers but largely to game



Commission Photo by Kesteloo

Whether or not these cooperative agreements remain in effect is up to the hunters, who must use "good outdoor manners."

populations living thereon. As game populations increase, hunter use rises.

It is not intended here to imply that all lumbermen are missing the boat if they fail to sign the nearest agreement. The size of an area, its primary use, the location, the bordering ownership and many other factors enter into the final decision of the owner.

Also, before the Commission can sign, there must be considerations as to budget limitations, personnel availability, wildlife potential of the area, and need for public hunting in that particular area of the state.

Without a doubt, future years are going to see great increases in pressures from the public for more "places to go." Many believe that the greatest potential of all lies with these landowners such as the lumbermen of Virginia.

There are many benefits to be realized by the owners who permit public use of their lands. Greatest of all is the good public relations created with local people, and local people are the major users. Herein lies much good regarding fire protection and control of timber trespass, both outstanding considerations. Those under the cooperative agreements also benefit from more patrol activities, publicity and an opportunity to sell their message to an expanded public. Also, private timber contracts are often aided by local good will.

Substantiation of these benefits comes from Florida. In that state, when many private lands were opened to public recreation activities, fires practically disappeared. Closer to home, the experiences with fire, timber trespass and vandalism were greatly reduced at Camp Pickett when that area was opened to public hunting and fishing.

Wildlife produces an annual crop. Wildlife management is the science of helping game to produce this maximum annual crop from a given acreage. Virginia lumbermen own much acreage and it is both an opportunity and a challenge for them to produce from this acreage an annual crop, other than timber products.

The Commission is grateful for the interest many of them have shown. They are hopeful that they and others may find the new experience in game management not only interesting and enlightening but profitable in every way.



Trout fishermen now enjoy the beauty of Moorman's River which once was closed because of "litterbugging" by fishermen.

Litterbugging in review—

Albemarle Saves a Trout Stream

By CHRISTOPHER A. GREENE
Charlottesville, Virginia

Commission Photos by Harrison

MOORMAN'S River, in what is locally called Sugar Hollow near the western border of Albemarle County, is a U-shaped stream, its north fork being about eight miles long and the south fork not over five. Its northern source is only a mile or two from Brown's Gap, over which Jackson marched his men from Elkton down to Meechum's River station to entrain for Staunton before the battle of McDowell in the War Between the States. The southern branch is much narrower, ending within whispering distance of the Augusta County line on the crest of the Blue Ridge.

The whole stream runs through beautiful wooded country, the Blue Ridge hanging above it to the west and detached mountains of the same chain surrounding it to the east. Vegetation along the stream is rich in profusion and color, with flowers in great abundance and size and trees of many species, especially dogwood, redbud, poplar and hemlock, the last being of enormous spread of limb. This riotous growth is in contrast to the rather barren and forbidding appearance of the valleys just over the Blue Ridge, such as the Big Run and Rip Rap watersheds. Before the opening of the Shenandoah National Park forced the removal of the cattle, which thrived on the cool air and rich bluegrass pastures, the southern end of the stream ran through open fields, now overgrown with brush and trees.

In the second decade of this century, when I first became acquainted with the region, forest fires were rampant. In a dry season, flames rimming the skyline at the top of the Blue Ridge could occasionally be seen from as far away as

Charlottesville, running along the crest for miles. Consequently, the forests presented a desolate look, with tangles of fallen blackened trees and stunted undergrowth and no carpet of flowers or grass. But the coming of the state forest fire prevention service and then the national park, with its fire lanes and well equipped rangers, changed conditions almost immediately. Fewer fires broke out, trees grew fast, reproduction sprang up, and flowers and grass carpeted the soil. This trans-



The Charlottesville-Albemarle Chapter of the Izook Wolton League of America spearheaded the clean-up campaign.

formation in only 40 years has to a moderate degree improved the flow, cleanliness and coolness of the water. But Moorman's River is quite straight with a long watershed which results in bad siltation, so that in my memory, since 1911, it has never been a first-class trout stream, though occasionally very large fish have been caught. This siltation and long exposure to the sun have made conditions far from perfect for reproduction of brook trout, though a tiny exquisite tributary called Rollers Branch (named after the family which founded the Augusta Military Academy) has been a perfect fish factory on a small scale.

Although Moorman's River is not a good native trout stream, it is, however, perfect for stocking. It is long and large, with an abundance of food in the way of minnows and every form of aquatic insect on the bottom and under the rocks. The minnows, especially, are so abundant that it is almost impossible to use a dry fly because, in some of the pools, it is seized by a minnow as soon as it touches the water.



The Virginia Commission of Game and Inland Fisheries now stocks Moorman's River with thousands of large brook trout annually.

In 1933, the State Commission of Game and Inland Fisheries stocked the river thoroughly from the north end, where it goes up into the mountain, to the junction point with the South Fork at the city reservoir and then up the south branch to the place where it becomes too small to be of any consequence. These plantings seemed thoroughly successful from the fisherman's point of view. They provided nearly seven miles of fishing, so no one was crowded except perhaps on opening day. For some reason there did not seem to be as many fishermen as now. Also, after the first year or so, the Park Service began to enforce the "flies only" rule, which further kept down the hordes of anglers. This smaller number of anglers per yard of stream naturally cut down the amount of debris thrown down by the fishermen.

In 1949 the park officials, in furtherance of their policy of "natural conditions only," forbade any more stocking on the part of Moorman's River belonging to them, which comprised all but two miles of the fishable water, which was the property of the city of Charlottesville, being the water supply for its reservoir.

At once the sanitary conditions on this shortened stream got bad, with 300 sportsmen concentrated in such a small area where before they were spread over seven miles. Beer cans

were dropped when emptied, lunch bags, half-empty sardine and baked bean cans were thrown here and there, and every offense against decency committed.

To try to counteract this condition, the wardens and sportsmen used every method of publicity, newspaper articles, and radio talks, and the Izaak Walton League posted many signs along the river, all saying in effect, "This is the city drinking water. Keep it clean." The results were negligible.

Then Mr. James Bowen, the city manager, took the only step he could take to keep the water supply safe. He said, "No more fishing in Moorman's River on the city property above the reservoir."

No one criticized his action, which was entirely correct. But the Izaak Walton League did not want the local fishermen to lose the only trout stream in the county, so they proposed to the city manager that if he would allow fishing again on Moorman's River, the League would clean it up, police it and keep it free of litter. Mr. Bowen agreed to try the plan for a year with the clear understanding that if the uncleanly conditions reoccurred he would close it, *and this time for good.*

The League went to work to keep their promise. Publicity went out by newspaper, radio and word of mouth that the fishermen must mend their ways or there would be no more fishing in Moorman's River.

Herbert Watson was appointed chairman of the anti-litterbug campaign with the result that his group, with the enthusiastic help of the wardens and of many citizens who were not members of the League, fell to work with a will, picking up bushels of trash, beer cans and lunch bags comprising the larger proportion of the loads. Then numbers of large signs were posted along the stream and the road instructing each fisherman to carry his trash to the iron drums along the road. Other signs quoted the state law threatening a \$500 fine and 30 days imprisonment for throwing trash near a public water supply.

The committee solicited gifts of steel oil drums from the public, filling station operators especially. I think Buck Shifflett carried the first litter barrel up to Sugar Hollow and put it in place at a ford. Herbie Watson painted a large sign reminding each sportsman that it was his duty to keep the outdoors unspoiled, and outlining the ideals of sportsmanship held by the Izaak Walton League.

The first spring, the stream and road banks were picked up three times, the resulting trash being carried by E. F. Cooley and Gentry Ray to the county dump in their trucks. This successful effort so pleased the city manager that he gave permission to continue the effort another year. The second year, Mr. Watson continued the work with more signs and more drums, and with noticeably less trash being thrown down, which showed that the public was beginning to take pride in keeping their stream clean.

The two following years Lars Sjostrom took over the work, begging more trash cans, which he stencilled with the League emblem and the slogan "Keep Virginia Clean." And last year Bob Barnes, a university student, headed the committee with splendid results. In this six-year campaign the game wardens have done an enormous amount of work and given encouragement of every sort.

It has been noticeable that each year a little less trash is scattered around than the year before, showing that an anti-litterbug campaign can be successful if it is directed by a committee which will really work and if there is an element of self interest and a compulsive force, such as Mr. Bowen's edict, "Clean up, or else," to jolt the public into action.



Commission Photo by Kesteloo; inset by Flournoy

The river otter (inset), once one of the most widely distributed mammals in North America, requires clear water, food such as frogs, crayfish, clams, and fish, and relative isolation in wooded or rocky terrain.

THE RIVER OTTER — DISTINGUISHED WEASEL

By LEE E. YEAGER

*Colorado Wildlife Research Unit, Colorado State University
Fort Collins, Colorado*

THE DEEP red glow low in the east said the June morning would be overcast, and it was already humid, still, and warm. The old Negro blacksmith pushed our dug-out into open water beyond the moss-draped cypresses and tupelo gums and told me to bait up.

"Throw out tworge de lily pads, Mr. Lee," he said, "brims is workin' dar'."

I flipped the cane pole with grade-school awkwardness but the ericket plopped within inches of a swirl between two of the big, round, floating leaves. The turkey-quill cork floated an instant and then tipped up at the edge of the widening eirele.

But playing a hand-size bluegill was not the next event. For at about the instant the cork went under, a large blackish head shot out of the water further ahead, and with equal swiftness disappeared again. A line of bubbles moving amazingly fast toward a jam of long-fallen cypresses marked the route of flight. They ended in front of the flaring butt of a half-sunken log, and in a twinkling a long, sleek, blackish animal slid out of the water into the gaping hole.

"Outter," Unele Q told me with great calmness. "Dey's got a den in dat hollow log, I 'spect. We's better fish further down de lake."

That was my personal introduction to the river otter. Valuable, wary, playful, never overly common, this sinuous denizen of deep swamps and upstream waters is distinguished among weasels. In size, he is second only to the wolverine, biggest of the family, if we except the marine-living sea otter. *Lutra* is larger than the badger and, in weight, up to ten times the heft of the largest mink. He is the most aquatic and easily the best swimmer among land and fresh-water mammals.

Weasels are noted—and named—for their musky nature, although the several species vary widely in "scent" rating. Otters are fairly well down the scale, "louder" than the badger or the weasels proper, above par for the mink, and far less offensive than the wolverine or any of the skunks. But don't sell the otter short. I learned . . .

In the late fall, years ago, an Uncle had laid out a trapline through the eypress brake that spread out over a half section in front of the Big House. Most of Une's traps were on logs, set for coons, minks, 'possums, and bobcats. On week-ends, and all school days when I could wear down parental objection, I tended the line with Unele Fred, for whom I gleefully toted coons and minks. But on this lowering Friday morning, with the catch running small, Une pushed the

dugout up to a long-down cypress log that extended a few inches up out of waist-deep water. We had already seen floating trash and shreds of cypress bark, and now we saw claw marks on the log, sure indications of a catch. Then Unc pointed to the furry tail-tip on the water surface. He reached over to haul in another drowned mink (he said later), but at the first touch the water exploded. The otter, obviously not long caught, went berserk, even though limited by the trap; and Unc, a fast man with a trapping hatchet, got in a solid blow. It was then that we noticed the heavy, musky, mustelid scent in the air, not wholly nauseous but much, much stronger than that of any hound-shook mink.

The rest of the story is standard: to school—home again, otter subbing for the traditional striped skunk.

It is as a playboy, however, that the otter is perhaps least known. Sporting in this case is not to be thought of in the sense the term is usually associated with man. Instead, wholesome family fun in the best social tradition: a family of otters, or members of a family, shooting rapids, rolling or looping over and over in the water, or sliding headlong down a muddy bank or a snow-covered slope. Sliding, observed by many outdoorsmen, has been vividly described by the famed Dr. O. J. Murie in his book, *Field Guide to Animal Tracks*:

"One wintry day in southern Hudson Bay I was snowshoeing up a small stream when I spied a movement on the snowy stream bank up ahead. I realized that it was an otter, and the next moment it slid down the bank. Another one appeared, clambered up the bank, and slid down. A third appeared from a hole in the ice, and for several minutes I watched these frolicsome animals, climbing, sliding, climbing, sliding, over and over again—until they all disappeared under the ice . . ."

When sliding down either a snowy or muddy incline, otters fold their short front legs back against their sides, their hind legs and tail trailing out behind. Slides may be 25 feet long or longer. In snow, the animals also glide along on the level, giving forward pushes with their hind legs to propel themselves; and, on ice, they may attain speeds of 15 to 18 miles per hour. Southern trappers assiduously sought out otter slides on lake and stream banks as choice places for their traps, and they placed their sets, whenever possible, exactly where the animals entered or left the water.

Among weasels, the otter's family life is exemplary. Most mustelids are decidedly promiscuous in mating habits, and while a male otter will consort with several females, he usually spends most of his time with only one. There is good



Commission Photo by Kesteloo

Otters are commonly found in Virginia's Tidewater rivers and are not uncommon in the State's mountain streams.

evidence that he will assist with feeding and training the young, and that he will defend them against beavers or other enemies. Most weasels except the otter, and of course any weasel mother with young, are loners, living solitarily and, for the most part, antagonistically toward their kind. By contrast the otter travels, forages, and plays as a family group. A partial exception in the weasel family, in winter, is the striped skunk which will den up in family or larger numbers during the coldest weather.

The gestation period in otters, as in some other weasels, may be as long as ten months, and possibly longer in some instances. The young, varying from one to four, are born February to April, according to latitude. Mating occurs only a few weeks after birth.

It is not generally known that, originally, the otter was one of the most widely distributed mammals in North America. Striped skunks, beavers, and muskrats showed similar distribution—Alaska, across Canada, down to the Gulf, and into Mexico. Cottontail rabbits did not extend quite so far north. It is evident that, like the beaver and muskrat, water and otter are synonymous, and early explorers and the pioneers encountered all three along water courses from one coast to another. Protection during the last few decades has brought both otters and beavers back on much of the original range.

This is not to say that otters do not have preferences as to habitat types. Given protection, the big weasel needs relative isolation—the factor in life that harried humans are coming more and more to demand. Water, reasonably clear, with frogs, crayfish, clams, and fish, backed up by wooded or rocky fastnesses, completes the environmental picture. Virginians, fortunately, have the otter's requirements in Dismal Swamp, in parts of the Back Bay area, and along the upper Potomac, Shenandoah, Rappahannock, York, James and Roanoke rivers.

Otter dens appear to be of two main types: daytime or lay-over dens, which may be any cavity-like spot behind rocks, under tree roots, or an overhanging bank. Main dens, where the young are born, are more elaborately designed and, usually, farther back from human habitation and use areas. Where steep banks permit, the most common maternity ward is a burrow, with entrance below water, along some isolated stretch of stream or lake. As a part of such a den there is certain to be an extra exit for escape; and while the opening may be on dry land, it is always near water. Other kinds of dens are determined mainly by terrain and vegetation, and may be the hollow bases of cypress trees, large hollow logs,

(Continued on page 11)



New York Zoological Society Photo

The otter is a large, weasel-like mammal, rich brown above with a silvery sheen below and with small ears and a broad snout. Its feet are webbed, and its tail is thick at the base, tapering toward the tip.

HAWKS

and

their relation to

AGRICULTURE

By C. R. WILLEY

*Director, Division of Plant Industry
Virginia Department of Agriculture and Immigration*

FROM the viewpoint of agriculture, the detriment or benefit derived from birds in general depends upon their food. Some species of birds consume those things which the farmer desires to protect and are detrimental, while other species consume those things which he desires to destroy and are beneficial. Those who have studied hawks have used this criterion as a basis for determining whether certain species are beneficial or harmful in their effects upon agriculture.

Scientists, a number of them, have made very careful and painstaking studies of the food habits of hawks to determine which species are detrimental and which species are beneficial in their relation to agriculture. They have made these studies: (1) by field observations, using high-powered glasses to determine what the hawks capture and either devour themselves or feed their young; (2) by the examination of pellets which are compact masses of fur, feathers, scales, bones, and similar indigestible materials which have been rolled into firm oval balls by the muscles of the crop and are discharged through the mouth; and (3) by the examination of stomach contents, which consists of the examination of thousands of hawks' stomachs, from various localities, and for every month in the year. In this manner a very detailed record of what any species of hawk has eaten is secured.

There are about a dozen species of hawks which occur in the eastern part of the United States exclusive of the vultures, the bald eagle, and the osprey, which indeed belong in the "hawk group" of the order *Raptores* or birds of prey. These have been classified as broad-winged or mouse hawks, pointed-winged falcons, and short-winged or bird hawks. Five hawks are classed as broad-winged hawks; they are rough-legged hawk, red-shouldered hawk, broad-winged hawk, red-tailed hawk and marsh hawk. The short-winged, or bird hawks, are three: goshawk, Cooper's hawk and sharp-shinned hawk.

Reprinted by popular demand from April 1940 issue, *Virginia Wildlife*.



Commission Photo by Harrison

The red-tailed hawk is one of the broad-winged hawks which are also called mouse hawks because their diet consists mainly of mice.

The broad-winged hawks are so named because they are rather large birds having broad wings. They are called mouse hawks because a greater part of their diet consists of mice or other small closely related mammals. These hawks also consume large numbers of insects and some frogs and snakes. A few game animals and birds, and poultry are taken.

The pointed-winged falcons, as the name implies, are hawks with pointed wings. Two of these, the duck hawk and the pigeon hawk, are generally very rare, especially in Virginia and are of no particular importance to us. The third, however, is very important and is one that should be given every consideration. This is the so-called "sparrow hawk," the small pointed-winged hawk that we see perched on the telephone poles and wires or flying about over the fields, especially fields where there is shocked corn at this time of the year. The diet of this small hawk consists almost entirely of insects and mice. It rarely feeds on small birds and so the name of "sparrow hawk" is indeed a misnomer and unfair to the bird.

The short-winged or bird hawks are rather slim-bodied, long-tailed hawks with short rounded wings. Of these short-winged hawks, one, the goshawk, is a northern species and is rarely, if ever, seen in Virginia. The other two, the Cooper's hawk and the sharp-shinned hawk, are the ones that commit most of the deviltry to the poultry yard for which all other hawks are accused. These two hawks are pre-eminently bird eaters, and more than three-fourths of their food consists of birds of beneficial species, including quail, grouse and chickens.

To distinguish these classes of hawks, the broad-winged hawks can be identified by their soaring in circles, perching in the open mostly on dead trees or dead limbs of trees, large size, tameness, slow flight, wide wings, and short broad tail; the short winged hawks, by their alternating flap and glide flight, perching under cover, direct rapid pursuit, long tail, smallish size and short bluntly rounded wings.

If we people would only learn more about the individual hawks and their habits and learn to distinguish the beneficial from the detrimental species, we would certainly have a higher regard for this important and comparatively little appreciated group of native birds. I am sure we would find that for the most part their relation to agriculture is beneficial.

Owls, "Lords of the Night," Need Protection

Studies of owl food habits reveal that these night-flying foragers dine almost exclusively on rodents and other small animals, according to Peter Farb in an *Audubon Magazine* article. Yet only 14 of our 50 states protect all species of owls in spite of the fact they are among the most beneficial of birds, rivaling even the hawks as controllers of rodents that could, except for such natural checks, overwhelm our crops and forests.

One authority states that in a single night a barn owl may capture as much small prey as a dozen cats. A British study revealed that in one area, owls took 23,980 rodents each year per square mile.

"Despite the overwhelming evidence of their sheer economic value, owls are being allowed to disappear from the landscape," Farb warns.

"They are being shot. Their habitat is being removed by bulldozers. The 'landscaping' we now give our woods in removing dead timber decreases the nesting sites of those owls that nest in hollow trees. Leaving an occasional dead tree standing in the woods, and placing large nesting boxes high on the trunks of healthy trees, can help correct that."

Farb also recommends "telling the story of owls" as a worthy conservation project for any group.



Commission Photo by Kesteloo

The white-footed mouse is one of the many kinds of rodents which would destroy our crops and forests if not controlled by hawks and owls.

THE RIVER OTTER—DISTINGUISHED WEASEL

(Continued from page 9)

or a suitable space under or between rocks. The one thing certain is that all dens, temporary or whelping, will be in the immediate proximity of water.

In the Deep South where huge hollow-budded cypresses were common 50 years ago, trappers commonly trailed otters to den trees or logs, whereupon they were chopped out and shot. I know personally of several instances where up to four otters—probably the whole family—were taken by hunters during the course of a long, hard day. Such tactics led to the extirpation or even extinction of otters over many parts of their range and, finally, to varying degrees of protection beginning 20, 30, or 50 years ago. It's another instance where most of the horses were stolen before the doors were locked.

The food habits of otters have been of some concern, particularly among trout fishermen. It goes without saying that a fish-eating weasel that can swim as well as a trout can catch—and eat—trout. But the important point is that otters eat more crayfish, water-bugs, frogs, suckers, and clams than game fish, largely because such prey is usually more abundant and far easier to catch than trout or bass. The otter that may occasionally find its way into a trout-rearing pond may indeed cost sportsmen a tidy sum. But it seems certain that most otters pay their way, piscatorially, through the removal of very considerable quantities of rough fish from sport-fishing waters.

Virginia and at least 20 other states still hold otter populations, in nearly all cases the hanging-on or building-up of residual rather than reintroduced animals. The presence of the most distinguished of weasels in any state is a faunistic trump. And Virginia is playing its hand well, a significant part of its management plan being its far-sightedness in setting up its Natural Areas System in 1960. You Virginians, both officials and citizens, are to be commended.

May your otters increase!

Virginia Raw Fur Sales

Virginia fur trappers were paid \$155,928.87 for raw pelts taken during the 1959-1960 season, according to Virginia Game Commission figures.

More muskrat skins were sold than any other, with 116,479 of them bringing an average price of \$0.94 each. Otters brought the best price—\$17.31 each—but only 256 were sold. The average price of the 2,123 mink sold was \$9.64 each. The 181 beaver skins brought an average of \$6.33 each.

Nutria was a newcomer to the Virginia market. Seventy-four skins of this South American rodent sold for \$0.50 each.

When You Change Your Address

You won't want to miss your WILDLIFE when you move to your new home—so please tell us, a month in advance, what your new address will be. (It isn't enough just to tell the Post Office, for they won't forward your copies unless you pay extra postage.) When you write us, be sure to give us your old address, too—even better, enclose a clipping of the address label from a recent cover. Write to: Virginia Wildlife, P. O. Box 1642, Richmond 13, Va.

Why Are We Jekylls and Hydes?

By E. E. RODGER

*Chief, Forestry Relations
Virginia Division of Forestry*

A COLD, clear, fast-flowing stream with just enough cover, trout and elbow room, a delightful temperature and an overcast sky—what more could a man want for his Waltonian pursuit. Far from the maddening crowd—a pleasure refreshing to the body and soul—that's fishing. A chance to commune with nature—be close to the Creator—that's living.

Hundreds of thousands of Virginians are devoted enthusiasts of the rod and reel. Millions of dollars are willingly spent on the sport. Why then do we jeopardize ourselves by destroying the very things we love most?

We humans are a strange lot. At times we are extremely selfish and self-centered and yet can be ever so generous.

This past winter tons of food were carried over rugged terrain and through heavy snows to provide sustenance to the woodland creatures. The Commission told us how to do it and we followed their advice. City and county folk alike participated in the project.

Many will give of their time and money to help the fish and fowl. Yes, there is a method in our madness, but it's not all selfish.

Why then are we Jekylls and Hydes?

The Jekyll in us demands that we buy the required licenses, obey the laws and volunteer our services when needed. The Hyde in us forces us to cheat on the creel or bag limit, set fire to the forests and pollute the streams.

Some of our activities in the Mr. Hyde role are intentional while others are a result of carelessness. In most cases the forest fires resulting from our acts are unintentional. Yet, we must keep in mind the unintentional fire wreaks just as much havoc as the intentionally or maliciously set fire.

You, the reader of this award-winning magazine, are familiar with the A.B.C.s of forest fire prevention. Chances are, you have never tossed a burning cigarette onto dry grass or leaves, nor have you left a cooking or warming fire burning while you went off to try your luck at the water's edge. Certainly no sportsman of my acquaintance and, I hope, yours has ever attempted to smoke game from hollow trees. Who, then, does these things? It is the other fellow, the uninformed, the careless, the Mr. Hyde of our society.

What can we do, our nucleus of folks interested in the present and future well-being of our great out-of-doors?

From a forest fire prevention point of view, we can teach. We should never hesitate to caution others about careless fire habits. The next time a passenger in our vehicle tosses a burning cigarette out the window, stop, if traffic permits, and back up to the spot where the cigarette fell. The passenger will no doubt inquire as to your actions—tell him point blank you are looking for his lighted cigarette. Sounds like a lot of trouble doesn't it—well, anything good is worth some effort. Does it work? Yes, I know, because I've done it.

We also have occasion to smoke in the woods. Some of us have careless smoking habits. The match that lights the cigarette is just as dangerous as the cigarette when tossed to the forest floor. How much safer it is to make an outdoor ash tray by scraping away the leaves to expose damp earth. Let's teach our smoking friends to use good judgment—not to toss their cigarettes, matches, cigars or pipe ashes helter skelter through the forest.

As we work our way up or down the stream this spring, let's keep our eyes open for warming fires not attended. Take a moment to drown them out and cover them with damp earth. It is time well spent.

We might be able to save a fellow angler embarrassment and money if we are familiar with the forest laws. As a reminder—from March 1st to May 15th no fires are permitted in or near (within 300 feet) of the woods or brush or grass leading to the woods. It is legal to have a cooking or warming fire after 4 P.M. as long as it is attended and carefully extinguished before leaving.

Forest fire prevention is a never-ending job. New generations of anglers and woodland visitors are in need of training. Training in the wise ways of the woodsman. You are the one to help with the training because you know the dangers of careless fire habits. You know how fires start and how to prevent them.

If we are to improve or even maintain the status of Virginia's fishing waters, we must reduce the number of man-caused fires. Forest fires destroy the trees and the humus (spongy layer that soaks up the rain and snow). Then, when it rains silt and wood ashes are washed into our streams. This is not good—it destroys our fishing areas.

Let's all put on our Dr. Jekyll attire and make a concentrated effort to teach our friends and neighbors the "hows and whys" of fire safety.



You can almost smell 'em cooking, and how much more we enjoy the meal when we know our cooking fire is safe. Many outdoorsmen use gasoline or kerosene stoves. These are quite safe from a forest fire standpoint. With attention, an open fire can be made safe.

VIRGINIA WILDLIFE

CONSERVATIONGRAM

Commission Activities and Late Wildlife News . . . At A Glance

VIRGINIA'S 1960-61 WILD TURKEY KILL A RECORD 4,591. Virginia's wild turkey hunters, in an exceptionally successful 1960-61 season, harvested a record 4,591 turkeys. This record kill was 25 percent higher than that of the previous season.

Virginia's top turkey county was Bath, where 330 were bagged last season. The 1960-61 Virginia turkey kill in other counties: Albemarle 56; Alleghany 68; Amelia 239; Amherst 42; Appomattox 101; Augusta 307; Bedford 30; Botetourt 105; Brunswick 75; Buckingham 276; Campbell 47; Caroline 133; Charlotte 74; Chesterfield 183; Culpeper 10; Cumberland 194; Dinwiddie 174; Essex 14; Fairfax 21; Fauquier 29; Fluvanna 54; Frederick 52; Goochland 31; Greensville 25; Halifax 99; Hampton 1; Hanover 26; Henrico 13; Highland 210; James City 4; King George 12; King and Queen 28; King William 35; Louisa 57; Lunenburg 65; Mecklenburg 28; Nelson 63; New Kent 62; Newport News 2; Nottoway 67; Orange 51; Pittsylvania 20; Powhatan 138; Prince Edward 96; Prince George 84; Prince William 77; Rockbridge 182; Rockingham 80; Shenandoah 65; Southampton 23; Spotsylvania 59; Surry 58; Sussex 109; Stafford 89 and York 18.

STATE DEER KILL UP 25 PERCENT, 35 PERCENT IN EAST. Virginia's record deer kill of 36,166 during the 1960-61 hunting season exceeded the previous year's kill by 25 percent. The record kill of 17,851 deer in the 46 eastern counties of Virginia exceeded the 1959-1960 harvest in these counties by 35 percent.

The 1960-61 eastern Virginia deer kill by counties: Accomack 28; Albemarle 203; Amelia 155; Amherst 112; Appomattox 139; Brunswick 98; Buckingham 551; Campbell 2; Caroline 2802; Charles City 269; Charlotte 12; Chesterfield 177; Culpeper 235; Cumberland 210; Dinwiddie 205; Essex 220; Fairfax 75; Fauquier 294; Fluvanna 178; Franklin 15; Gloucester 252; Goochland 317; Greene 37; Greensville 81; Halifax 284; Hampton 28; Hanover 213; Henrico 137; Isle of Wight 269; James City 212; King George 375; King & Queen 243; King William 331; Lancaster 371; Loudoun 196; Louisa 529; Lunenburg 41; Madison 19; Mathews 122; Mecklenburg 26; Middlesex 77; Nansemond 105; Nelson 135; New Kent 364; Norfolk 532; Northumberland 233; Nottoway 105; Orange 124; Patrick 123; Pittsylvania 6; Powhatan 197; Prince Edward 21; King George 527; Princess Anne 14; Prince William 248; Rappahannock 288; Richmond 382; Southampton 1050; Spotsylvania 432; Stafford 630; Surry 279; Sussex 800; Warwick & Newport News 212; Westmoreland 274; York 630.

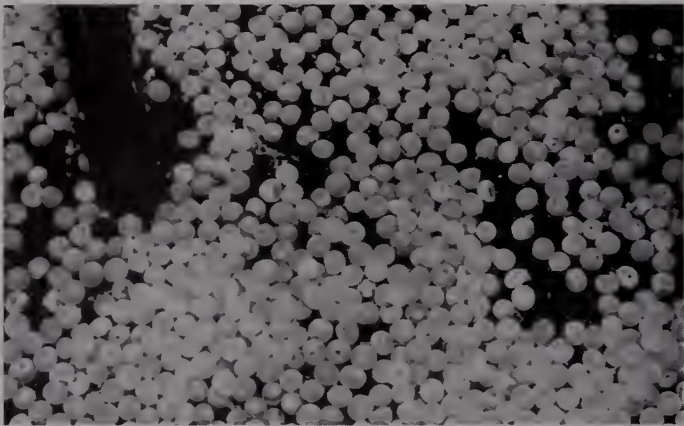
VIRGINIA BLACK BEAR KILL DOWN 42 PERCENT. The 208 bears harvested in 25 Virginia counties during the 1960-61 hunting season represented a 42 percent decrease from the 1959-1960 kill. The 1960-61 bear harvest--while less than the 361 taken in 1959-60 and the 272 bagged in 1958-59--was close to the 213 taken in 1957-58 and better than the 1956-57 total of 135 bears taken.

This was the first year since 1955 that hunters in central and northern Virginia could shoot a bear during the deer season. A total of 76 bears were taken during the opening week of the season.

The 1960-61 Virginia bear kill by counties: Albemarle 6; Alleghany 6; Amherst 7; Augusta 22; Bath 14; Bedford 11; Bland 1; Botetourt 16; Craig 5; Giles 5; Green 3; Highland 5; Madison 4; Montgomery 4; Nansemond 10; Nelson 14; Norfolk 11; Page 2; Pulaski 1; Roanoke 1; Rockbridge 14; Rockingham 21; Smyth 12; Tazewell 5; and Wythe 8.



The hatchery room. Cold water flows through troughs where eggs are hatched and fry are reared. Herchel Kirby, hatchery foreman, is pictured in foreground.



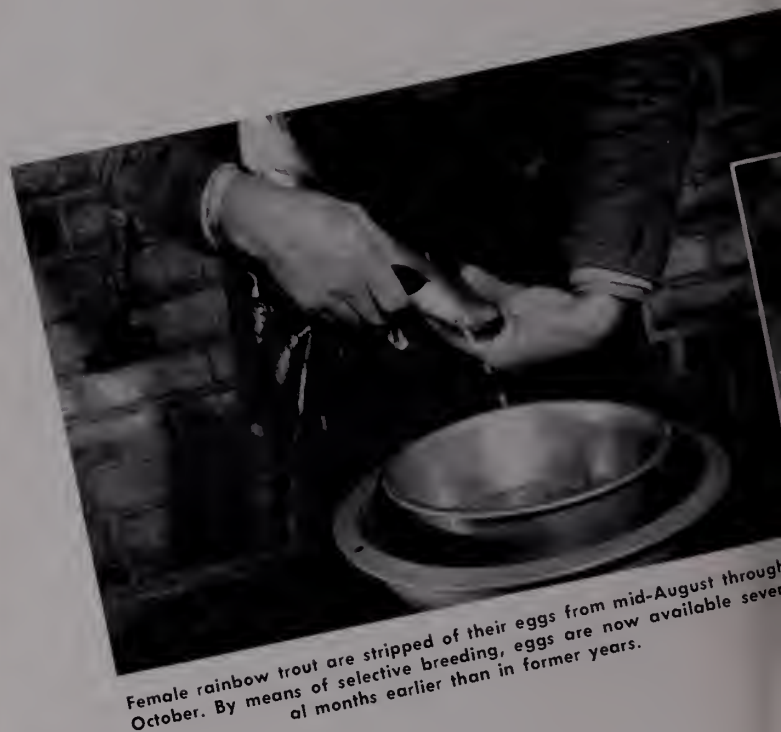
A turkey feather is used to turn the living eggs and cull out the dead and infertile ones.



Trout fry (above) live on their egg yolks several days after hatching. Aerators (below) eliminate carbon dioxide and increase the oxygen in the 1,800 gallons of water per minute that rush through the hatchery.



Owned and operated by the Virginia Commission of Game and Inland Fisheries, on Route No. 16. More than 100,000



Female rainbow trout are stripped of their eggs from mid-August through October. By means of selective breeding, eggs are now available several months earlier than in former years.

VIRGINIA'S TR

Text and Photo

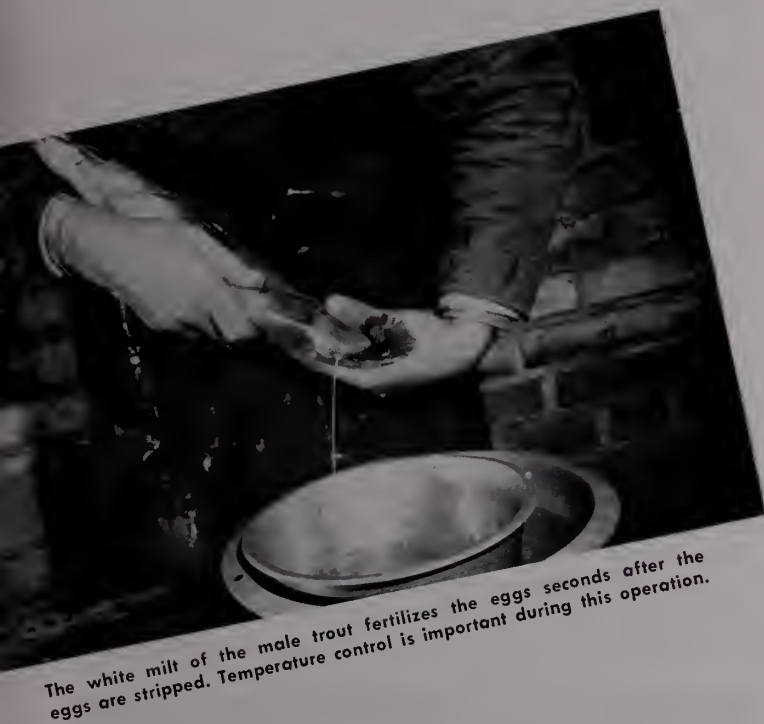
Although April 1 was "April Fool's Day," Virginia trout fishermen were not fooled when they hooked a trout that opening day.

More than 700,000 rainbow and brook trout will be stocked this year by the Game Commission in 128 mountain streams of the State. All of these yearling trout got their start in life at the Commission's Marion Hatchery, Virginia's trout plantation.

It takes a lot of hard work, money, and scientific knowledge to make a 9½-inch trout from a tiny egg in a year's time, but this is accomplished without much difficulty here in Virginia where approximately \$160,000 is budgeted annually for trout propagation and distribution.



Buller Hatchery with its many rearing ponds is located two miles south of Marion. Thousands of trout are reared here annually.



The white milt of the male trout fertilizes the eggs seconds after the eggs are stripped. Temperature control is important during this operation.

TROUT PLANTATION

By George H. Harrison

operated by the Virginia Commission of Game and Inland Fisheries.

Rainbow trout eggs are stripped and fertilized in the fall, and in about 27 days they hatch. Brook trout eggs are obtained from an out-of-state source and are hatched at Marion in January. After six weeks of care inside the hatchery, the young trout are put in the large ponds outside the hatchery building. Some are taken to trout rearing stations at the Buller Hatchery near Marion and the Montebello fish nursery where they are raised to catchable size.

Fish Division personnel are striving to make 1961 the greatest trout fishing year in the State's history.



Father and son are a working team in the Virginia trout raising program. Dixie Shumate, Sr., at left, is supervisor of all Commission hatcheries. Hatchery biologist Dixie, Jr. is a graduate of V.P.I. and the U. S. Fish and Wildlife Service Training School at Cortland, N. Y.



The Shumates developed a trout food pellet of skimmed milk, cottonseed meal, fish meal, wheat flour, vitamins, cod liver oil and other items. Pelleted food has proven superior to frozen fish which was used in the past.



The stocking program starts in early February and continues throughout the spring. No trout smaller than eight inches are stocked.



Virginia's 1961 Trout Program

By JACK HOFFMAN

THE COMMISSION of Game and Inland Fisheries has revised the Virginia trout program for 1961. Some of the changes involve measures being tried for the first time. All are intended to provide a better trout season for more trout fishermen. The changes from past years include an early April opening date, brief closed periods in early May for restocking trout streams, the release of brown trout in a number of streams, the requirement that an angler must stop fishing after creeling eight trout, and the establishment of a "fish for fun only" area. These changes are based on experience and are intended to meet the problems of past seasons.

Some may question the advisability of opening the trout season on the first Saturday in April when the weather may well be bad for fishing. Trout streams are in or near the mountains and early April can be wintry. There is little doubt that the trout season will occasionally open in a snow storm. On the other hand much of April is usually pleasant and the cold spells and storms are short lived. The early April opening date will make the fair weather of April available to trout fishermen. The additional fishing gained during each April should offset an occasional snowy opening day.

Although the legal season extends from opening day to the end of December, the actual or "practical" trout season doesn't. It is limited on one end by cold, wintry March and on the other end by the hot, dry weather that we can usually expect in July. When allowances are made for icy roads and frozen streams, two months are required to stock the trout streams before the season opens. April 1 is about as early as we can open our trout season. On the other hand, in July most streams are so low and clear that it is hard to catch a trout. By this time "the brush is thick and snakes are out" and interest in trout fishing has subsided. April, May and June is the "practical" trout season in Virginia, and unless our legal season opens in early April, we are losing some trout fishing.

While not of primary importance, it should be noted that most illegal trout fishing has occurred in April in the past. When the weather is pleasant and the mountain streams are heavily stocked, it is hard to prevent some people—especially some young people—from going trout fishing. The early April opening date should save some trout for the legal fishermen.

The early April opening date, by making the three good months available to the trout program, permits brief closed periods for restocking the streams. Experience has shown that mid-season stocking results in more fishing trips for more people when compared to preseason stocking only. This holds true for the same number of trout; 2000 trout stocked in March will not furnish as much fishing as 1000 stocked in March and 1000 stocked in May. That is not a new idea and Virginia has practiced in-season stocking for several years, but "truck followers who catch all the fish" have caused some dissatisfaction. The closed periods are designed to eliminate this complaint.

An important point here is that time is provided in our "practical season" to fish for the trout stocked. Nearly all trout stocking is in the "put and take" category and the trout are intended to be caught. The trout in the creel is the measure of a "put and take" stocking program. The early opening date will give Virginia anglers the month of April to fish for the large number of trout stocked in February and March. In early May as many of the streams as possible will be restocked during the closed periods without a few fishermen following the hatchery trucks and "cashing in." Most of May and all of June will remain to catch most of the trout, so that the relatively few remaining will have a better chance to survive the summer and fall when streams are low. Experience has shown that most Virginia streams, with a number of exceptions should not be stocked much later than June 1.

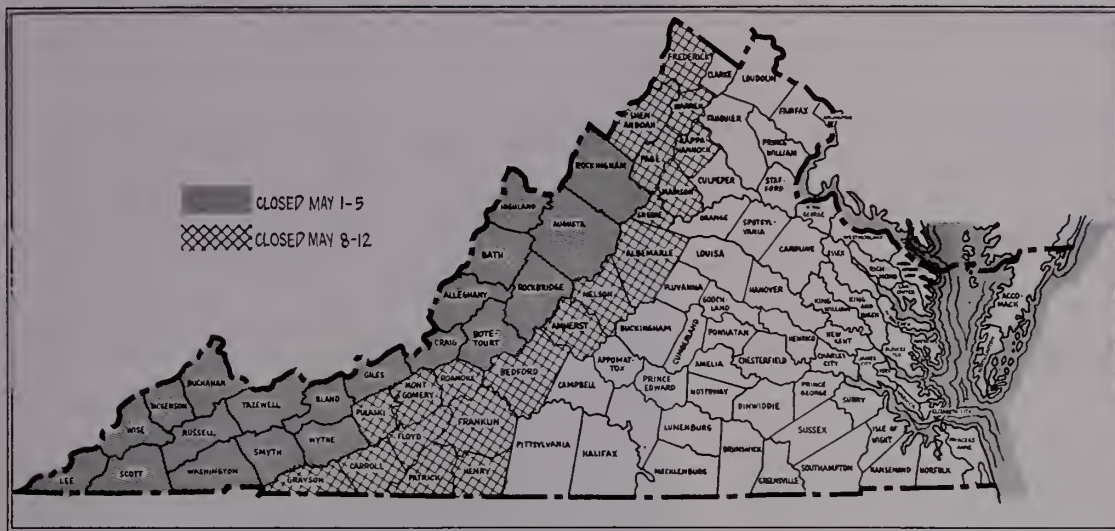
Another question that may be asked is why have two closed periods? Why not close all the trout counties at once? The answer to this question lies in the fact that the guiding principle in the development of the program has been to deprive the fisherman of as little as possible. Trout hauling facilities are the limiting factor—there is a definite limit to the number of trout that can be stocked in a week. If all 40 counties closed at once, no more trout could be stocked during the first week anyway because of the hauling limitation and the result would be many more streams closed for that week than could be stocked. The Commission wants to avoid closing any stream unnecessarily.

The counties were grouped for the closed periods with several other things in mind. First, they were arranged so that a trout fisherman who wants to fish while his county is closed may do so by driving a reasonable distance to a county that is open. Counties that share a trout stream were not separated by the closed periods to prevent misunderstandings that



Some 900,000 brook and rainbow trout eight inches and longer in size will be stocked in Virginia waters this spring. Creel limits like this should not be uncommon.

Mr. Hoffman is Research and Management Supervisor for the Virginia Game Commission's Fish Division, and is stationed at Roanoke.



To eliminate "truck followers who catch all the fish," closed periods (see map) will be enforced during which time in-season stocking will be conducted.

might develop at county lines. The closed periods do not include any Saturdays or Sundays—days when most people can, and do, go fishing.

This year brown trout have been stocked in a number of Virginia streams for the first time. A total of about 15,000 brown trout were obtained from the U. S. Fish and Wildlife Service hatchery at White Sulphur Springs, West Virginia. These trout were distributed on the basis of 1000 each to the following streams:

- Jackson River—Gathright Area, Bath and Alleghany Counties.
- Pedlar River, Amherst County
- Wolf Creek, Bland County
- Jennings Creek, Botetourt County
- Potts Creek, Craig County
- Cedar Creek, Frederick County
- Big Stony Creek, Giles County
- Smith River, Henry County
- Jackson River, Highland County
- Dan River, Patrick County
- North Fork Shenandoah River Headwaters, Rockingham County
- White Top Laurel, Washington County
- South Fork Holston River, Smyth County
- South River, Rockbridge County
- Hughes River, Madison County

These brown trout were not part of the regular put and take program but were released experimentally with two objectives in mind. First, to see if they will establish themselves in some of our mountain streams and make a contribution to the wild trout fishery. Second, to see if the brown trout will carry over in some of our better streams and grow to a large size. The presence of large brown trout should add interest to trout fishing in streams where this might develop. The brown trout is not being used to stock new waters not previously stocked with brooks or rainbows. The pros and cons of brown trout stocking were covered in detail in an article in this magazine last month.

The Commission has established the first "fish for fun only" area in Virginia this year. The area is in Madison County, and includes the Rapidan River and its tributaries upstream from a sign at the lower Shenandoah National Park boundary. A section of state-managed stream and two sections in the Shenandoah National Park are involved. This area

was established in cooperation with the Shenandoah National Park and is for those who want to fish for sport only. No fish may be in possession at any time in the area. Only a few large trout will be stocked in the area to supplement the good wild trout population. Most of the fishing will be for wild trout. The details of the "fish for fun only" plan will be covered in another article to appear in this magazine next month.

The Commission hatcheries have produced about 700,000 brook and rainbow trout for this season. Most of these trout are one-year-old fish—only about 100,000 are two years old. Under the present production program, the one-year-old trout are about as big as the two-year-olds. Small trout will be graded out and fed to a larger size. No trout will be stocked under eight inches and most will be much larger. About 505,000 of the trout were stocked preseason and as many as possible of these remaining will be stocked during the closed periods in May. It will be necessary to restock some of the larger streams while the season is open. The 700,000 state trout will go out to 140 areas on 120 streams. The Commission and the U. S. Forest Service will stock additional trout on both national forests under the cooperative program. On the Jefferson National Forest, about 90,000 trout will go to 40 streams and on the George Washington nearly 100,000 trout to 60 streams. The stocking program for 1961 adds up to about 900,000 trout to be stocked in 180 streams in Virginia.

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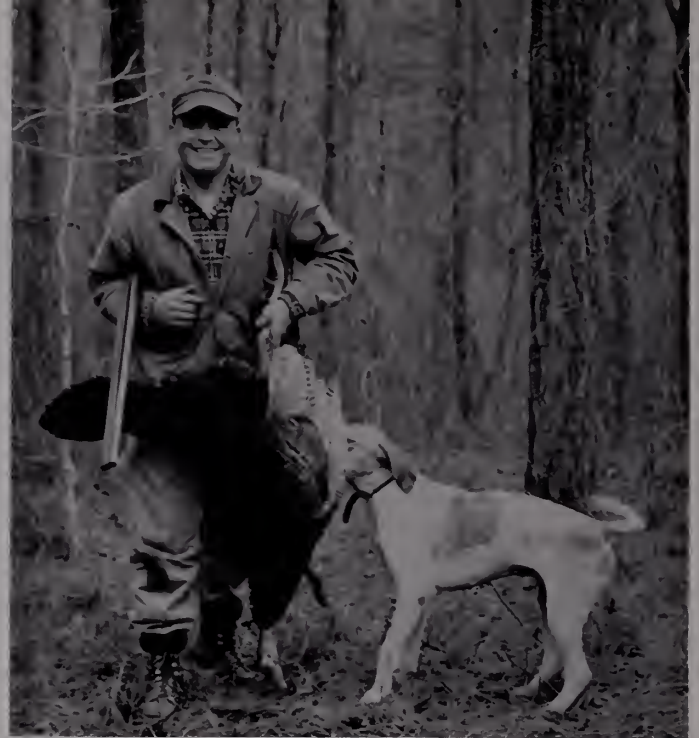
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Techniques of Spring Turkey Hunting

By G. K. LIGHTSEY

*Chief Enforcement Officer, Game and Fish Division
Alabama Conservation Department*

Commission Photos by Kesteloo



Gobblers—such as this one bagged by Game Warden J. R. Bellamy—are much more easily identified in the spring than in the fall. Virginia's spring gobbler season proposal prohibits the use of dogs for such hunting.

Editor's Note: The Virginia Commission of Game and Inland Fisheries proposed the following regulation at its February 24 meeting for possible adoption at its March 20 meeting: "Amend Regulation 2 so as to make it lawful to hunt bearded turkeys only, within the confines of Camp A. P. Hill, Camp Pickett, and Commission-owned Gathright Management Area, from April 24, 1961 to April 29, 1961, dates inclusive, from one-half hour before sunrise to 12 o'clock noon (Eastern Standard Time). Bearded turkeys shall be hunted by calling. It shall be unlawful to use dogs or organize drives for the purpose of hunting."

BEFORE attempting to explain some of the techniques of spring turkey hunting I, as a law enforcement officer of the Game and Fish Division of the Alabama Conservation Department, would like to explain why I think a spring season is sound in Alabama.

We have had a spring turkey season ever since I can remember. Alabama has the longest open seasons of any state. In some counties—those having the greatest population of turkeys—we have 53 days of open season in the fall and winter plus 27 days in the spring, which gives us a total of 80 days. We have one of the most liberal bag limits—1 a day or 5 gobblers during the combined winter and spring seasons. Yet our turkey population continues to rise, despite the continued increase in hunting pressure. As an enforcement officer, I believe this is due largely to our laws which protect the hens at all times and prohibit baiting and hunting with dogs. I feel that a ground-nesting bird such as the turkey has enough natural enemies, such as the fox, bobcat, skunk, crow, hawk, and snakes, without including man.

I have hunted turkeys and worked in the woods for 30 years or more and I certainly believe that wild turkeys, where the habitat is suitable and they are hunted fairly (that is, hunted only during seasons as prescribed, hens protected, dogs and bait prohibited), will increase from year to year, and when the build-up reaches a point of being too crowded the overflow will stock surrounding areas.

I believe that any game bird or animal should be hunted when it is the most sport, when this is possible without being detrimental to the species. Anyone who hunts for the meat could certainly buy more with what it costs to hunt. A person who has never hunted the wild turkey during the gobbling

season has never really had the thrill of the real sport of turkey hunting.

During the fall and winter, hens with young turkeys stay together in flocks, while old toms of two or more years of age band together in another flock. Seldom will an old tom stay in a flock of hens and young toms at this time of the year. In the spring as the mating time approaches, the old toms begin to challenge one another for a choice location to assemble a harem of hens. While they have lived together in peace all during the winter months, they now start to fight among themselves, and to the victor belongs the choice location in the forest. The vanquished has to go elsewhere to assemble a harem for himself.

The identification of the gobbler in the spring is easy. Seldom will a tom under two years of age gobble. All toms of that age will have beards from four to 11 inches long. The beard is a growth of coarse, black hairs that grow from the upper part of the breast and can be readily seen when in shooting range. Then, too, there is considerable difference in the size of an adult tom and that of a hen. They can also be identified by their heads, which are much more bald than that of the hen, and will range in color from red to a bluish white at this time of the year.

To become a successful turkey hunter, one must possess certain qualities not especially required for hunting other game birds or animals. The most important of these is patience, and also the ability to remain perfectly still for a long period of time. When I started hunting turkeys in the spring some 30 years ago I was determined to master the art without the help of anyone. True, I listened to many stories by other hunters who had called old toms within range. But the best lessons I learned were learned through experience, by the trial and error method. One needs to make but one mistake, and your gobbler is gone for that day. Naturally, I made many, for it took me three years to get a turkey within range. My most common mistake, as with most beginners, was my lack of patience. I would get within calling distance, call to a gobbling turkey, then before he would have time to come to me I would decide to move to a better location or call too much or too loud, for fear he had not heard me. In either event, I failed to get my turkey. There

is one thing to remember, and that is that a turkey's eyes and ears are many times more keen than that of a human. Indeed his survival greatly depends on these two sensitive organs.

It is natural for a hen who is in the mood for love to go to the gobbling tom; therefore when you imitate the call of his lady love, don't expect him to come running to you for, chances are, he will remain in the same vicinity for quite a while. If you have him interested no further calling is necessary. Curiosity will finally prevail and he will come to the exact location from which you have called. Never move until you are sure he has gone in another direction. When you are satisfied that he has gone in another direction, the chances are that a hen or hens has gone with him. Your chances of calling him back then are just about nil. The thing to do then is to get out of the woods as quietly and quickly as possible and wait for another day. Never try to walk upon, or flush, him for this could result in the flushing and shooting of a hen.

To hunt turkeys during the spring season, one should always arrive at his hunting ground well before daylight. One of the main reasons for this is that sometimes they will gobble before daylight, and almost always before they leave the roost, and you will be able to hear them at a much greater distance at this time of the morning. In a hilly or mountainous country, turkeys are prone to roost in deep hollows, along streams, or hillsides. When flying from the roost, they will invariably fly to higher ground and the gobbler, unless a hen is with him, will work his way to the top of the highest ridges, gobbling as he goes. Thus it is always best to do your calling on the same level or on higher ground, preferably on a point or ridge above the turkey.

In selecting a place from which to call, always choose a place in the open that is free from underbrush. Pick a tree or stump as near the size of your body as possible and sit in front of it, facing the turkey. Never hide behind a tree or stump.

In selecting a caller, you will find many types on the market today, including a record that can be used on a

battery-operated record player. This type is not considered a sportsman's caller and is not legal to use in Alabama. I prefer the mouth caller. It is a half-moon type made of metal with thin rubber fastened therein. It fits between the teeth in the roof of the mouth and a call is made by blowing and controlling the tone with the tongue. However, it is difficult to master. For the beginner, perhaps a small cedar box type used with a piece of slate will be better. Lots of practice is required to become proficient with any type caller.

The gun with which you hunt is very important. The shotgun is used almost exclusively in Alabama. I personally prefer the 12-gauge with a 30-inch full choke barrel, using any well-known, high-velocity shell and number six chilled shot.

The hunting clothes is another important factor in turkey hunting. Perhaps the best is the camouflaged suit that can be had in either two-piece or the coverall type. If you do not have this, a dark forest green outfit is very good. No light or bright colors should ever be used.

Let's assume that you have your caller, gun, shells, and hunting togs. You have gone into the woods of your choice 30 or 40 minutes before daylight and you hear a turkey gobble within one-half mile approximately 10 minutes before it will be light. The next thing to do then is to approach as fast as possible and as quietly as possible to within three to four hundred yards. Slow down then and pick your route to within 150 or 200 yards, depending on the terrain. Select your place from which you will call, making sure that you can see at least 40 yards in front of you while sitting. Get comfortable, take your caller and make one cluck, then follow with three yelps, or hen calls, toned down very low. If you do not get an answer, wait three or four minutes and repeat the call a little louder. Then wait for results. The fact that he does not answer your calling is no sign that he will not come to you. Many times I have called to a gobbling turkey and he would quit gobbling, but would come walking or strutting to within range.

One thing to remember when you feel sure that he is heading your way is to be ready to shoot. For a big, clumsy looking bird, they can make an exit very fast indeed and will take advantage of the terrain or trees in doing so. Always when I think a turkey is coming in answer to my call, I will draw my knees up so as to rest my gun on them, pointing in the direction I last heard the turkey. Once I see him, I lower my head over the gun with my hat or cap pulled down well over my face. I follow him with my gun, aiming at his head and neck, as he walks until he is within 30 or 40 yards.

Never shoot a turkey in the body, as this will only result in wounding him to fall prey to some predator. In order to prevent shooting a turkey too far away, always pick out a tree or group of trees that you are sure is within range before sitting down to use as a guide for distance.

BULLETIN

On March 20, 1961, the Virginia Commission of Game and Inland Fisheries voted to adopt as advertised the spring gobbler season proposal made on February 24. Free permits will be required to hunt on both of the two Second Army posts. Postcard requests for permission to hunt on Camp A. P. Hill (Bowling Green, Va.) should be sent in advance to the post's commanding officer and should include the applicant's name, hunting license number, address, the date he desires to hunt, and an alternate hunting date. State personnel will supervise the processing of these applications. Permits will be issued on an "earliest postmark" basis. Each applicant will be allowed one day's hunt. On Camp Pickett (Blackstone, Va.), hunters will be allowed in on a first-come, first-served basis with no advance reservations. The quota on Pickett will be less than the regular hunting season quota due to military operations.



Turkey hunters must have big game licenses. Those who are successful must have their kills tagged at big game checking stations. Shown tagging a gobbler is Supervising Game Biologist J. E. Thornton.

Virginia's Anadromous Fishes

By WILLIAM H. MASSMANN and ROBERT S. BAILEY

Virginia Fisheries Laboratory, Gloucester Point, Virginia

WHEN icy winter nights grow shorter and the sun begins to warm land and water, the shad return. By silvery thousands, guided through instincts as yet unknown and propelled by powerful strokes, shad migrate from the sea to Virginia rivers to spawn as they have since before the days of man. The sea is the usual home of shad but to reproduce they must return to fresh water.

Stemming strong currents and passing enormous obstacles, such as fishing nets and polluted waters, the annual spawning migrations are accomplished. Most often adult shad return to the river in which they were hatched. After spawning, spent fish make their way back to sea, beyond reach of their greatest enemy—man. Here they feed and fatten in preparation for their migration the following year.

The eggs, broadcast and fertilized in fresh waters, soon hatch and the tiny shad resulting remain in the rivers until fall, feeding mainly on insects. As the water cools in autumn shad fingerlings, now about four inches long, move seaward, where they remain far offshore in ocean waters until they mature in from three to five years. Then, impelled by instincts, the long and hazardous spawning migration begins.

Shad, like river herrings, rockfish, white perch, sturgeon, and sea lamprey, are anadromous fishes—marine fishes that migrate to fresh water for spawning. The spawning migrations, which concentrate shad in our rivers, have been of great value to man. It has not been necessary to search in the ocean for them, but only to wait until the spawning runs begin and set nets to intercept these runs. Since colonial times great numbers of shad have been harvested each spring. In some cases, spawning stocks have been severely depleted. Fortunately, in Virginia, there is no evidence that shad runs have declined because of overfishing.

In some places dams have been built across rivers that these fish once ascended. Shad formerly penetrated to the head-

waters of the James and Rappahannock rivers for spawning. They are now blocked at Richmond and Falmouth. Fortunately, extensive shad spawning areas remain below these dams but some of these areas are badly polluted. Conditions in Virginia, however, do not approach those in the Delaware River where pollution has virtually destroyed the shad fishery. From 19 million pounds in 1896, commercial catches there have dropped to nothing in recent years.

Closely related to shad are the river herrings, which include the alewife, blue back or glut herring and hickory shad. Except for their smaller size, they closely resemble shad. Their distinguishing characteristics have been pointed out in a previous article (The shad in Virginia waters, by W. H. Massmann and Robert S. Bailey, *Virginia Wildlife*, Vol. XVII, No. 4, April 1956). River herrings not only look like shad but behave much like them.

The alewife has penetrated inland waters to the Great Lakes where a landlocked form has arisen. Anadromous fishes become landlocked when they no longer have access to the sea. Great Lakes alewives spend most of their lives in the Lakes, but for spawning they ascend tributary streams. Landlocked fishes do not generally grow as large as those that have access to the sea. In addition to the alewife, the salmon, smelt, sea lamprey, white perch, and recently rockfish have developed landlocked forms.

A spectacular representative of this anadromous group of fishes is the Atlantic sturgeon, which was formerly much more abundant than it is now. Although most of its life is spent in the sea, the sturgeon spawns in fresh water. Highly prized for roe, from which caviar is made, sturgeon sometimes reach a length of twelve feet and weigh up to 600 pounds. Although sturgeon have almost disappeared from Virginia waters, large individuals are sometimes captured. A 437-pound sturgeon was taken from the James River in December 1960



Commission Photos

Fisheries laboratory biologists tag shad to determine if enough spawners are reaching the breeding grounds so that shad fishermen (left) can be assured of a continuing supply of the fish they depend on for part of their livelihood. A small Atlantic sturgeon (center) is shown being held by State Waterfowl Refuge Supervisor W. H. Taylor. Rockfish (right) are more abundant in Chesapeake Bay than anywhere else in the United States. They are highly prized by both commercial and sports fishermen. The most usual weight is one to two pounds, though sportsmen take a number weighing well over 20 pounds. The illustration is from a painting of a rockfish by S. A. Kilbourne. This painting was made for the then United States Commission of Fish and Fisheries in 1878.



Right and left, Virginia Fisheries Laboratory Photos; center photo by V. D. Vladykov
 Knowledge of anadromous fishes is obtained by studying their life histories. At left, W. H. Massmann and Dr. J. L. McHugh set plankton nets in the James River above the Appomattox River to collect shad eggs and locate spawning grounds. Center, the sucking disk of the lamprey eel. At right, federal biologist James Sykes tags a rockfish to determine its migration route.

and one weighing 204 pounds was caught in May 1958. A 200-pound sturgeon, trapped in shallow water of the Rappahannock River near Falmouth, was captured with a lasso in August 1958.

The sea lamprey is an eel-like fish two to three feet in length whose mouth is a large sucking disk containing twelve rows of large, hooked teeth. The lamprey, a carnivorous parasite, feeds on other fishes. Clinging with its sucker-like mouth, the lamprey rasps a hole in the skin of its prey with its sharp teeth and sucks out the blood. The victim may be killed by such attacks, especially if the lamprey is large or if several individuals attack the same fish. Lampreys prey on shad, herring and a great variety of other fishes. Not a problem in their normal habitat, which is Atlantic coastal waters, sea lampreys made their way into the Great Lakes by way of the Welland Canal and are now blamed for the almost complete collapse of the once lucrative lake trout fishery.

Methods for controlling lampreys in the Great Lakes region have been based on their anadromous habits. Lampreys ascend the rivers and enter small streams for spawning. Circular nests two or three feet in diameter are constructed in gravelly areas by adults, who clear away the stones by carrying them with their mouths. When the eggs hatch the young lampreys drift to muddy sections of streams where they burrow into the bottom and remain for several years feeding on small aquatic animals. It is during this period of development that lamprey nursery areas are located and the young are killed by poisons which are toxic for larval lampreys but relatively harmless to other fishes. Although lamprey eradication is costly, it is necessary if the lake trout is to be restored.

The white perch is often called an anadromous fish, but is really a borderline case. Closely related to the more glamorous rockfish, white perch in our rivers spawn in fresh water but do not always migrate to salt water. Large individuals sometimes weighing a pound or more migrate downstream, but seldom venture into Chesapeake Bay. White perch have been stocked in many inland lakes where they reproduce successfully—in some cases so successfully that these lakes are soon overcrowded with large populations of stunted fish.

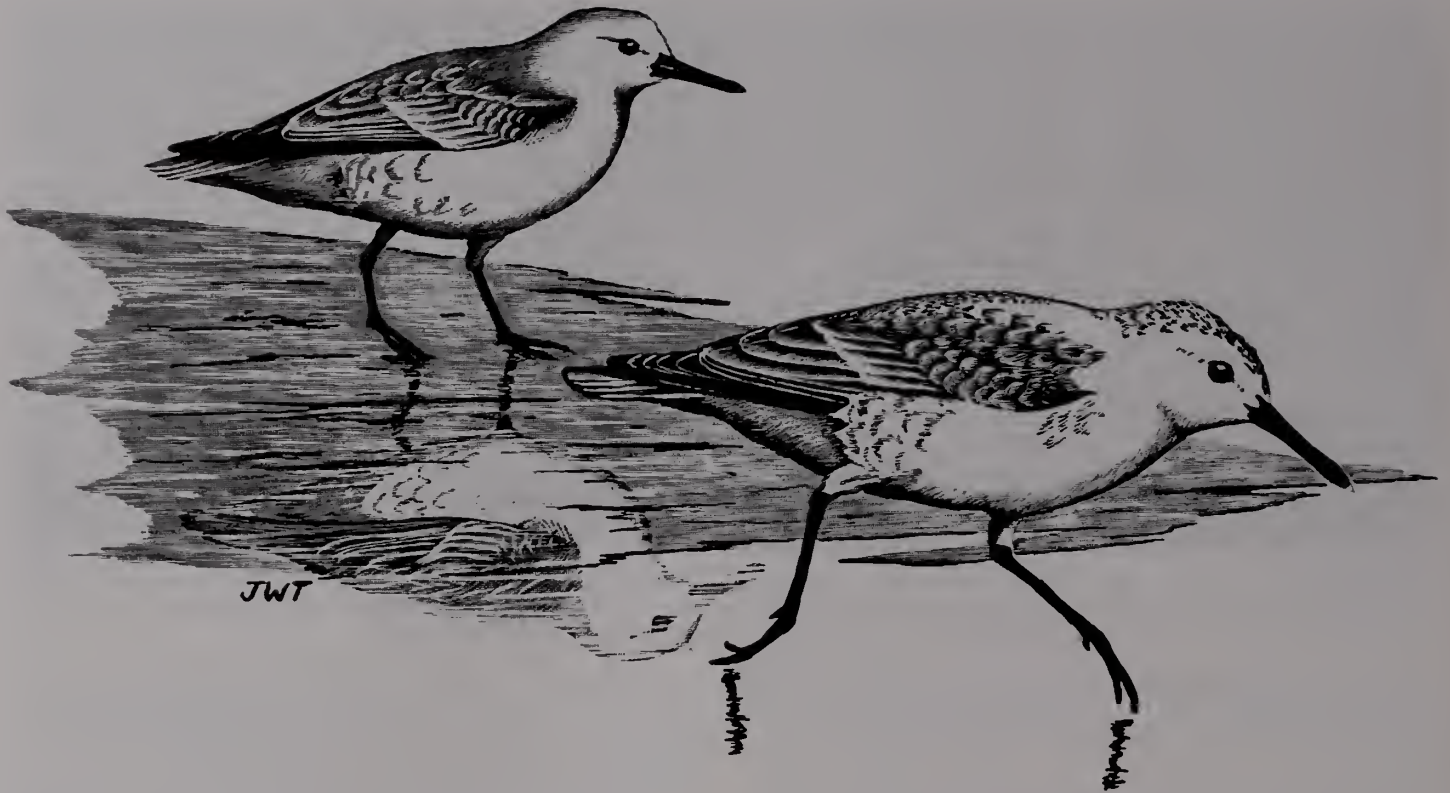
From the anglers' point of view, the rockfish, or striped bass, is king of anadromous fishes. The rockfish is a fighter that sometimes exceeds 50 pounds in weight. Although some rockfish undertake long migrations in Atlantic coastal waters,

most generally remain near the river in which they were hatched. The James, Rappahannock, Mattaponi and Pamunkey rivers include some of the most important rockfish spawning areas along the entire Atlantic coast.

Although dams are generally a serious problem for anadromous fishes, in some cases they have benefited rockfish and rockfish anglers. A dam constructed in the Santee-Cooper River, South Carolina, blocked rockfish from access to the sea. The fish trapped above the dam survived as a landlocked population, reproduced and afforded spectacular sport fishing. Biologists of the Virginia Commission of Game and Inland Fisheries have succeeded in establishing a population of landlocked rockfish in Kerr Reservoir where they have reproduced successfully for several years. These fish provide good fishing at present and the fishing should improve as the stocks increase.

There is now considerable demand for live rockfish to be stocked in other large reservoirs. Last summer several hundred small individuals captured in the Pamunkey River were airlifted to Kentucky Lake in Kentucky and Tennessee. It is hoped that these fish, along with others from North and South Carolina, will become established as another self-perpetuating, landlocked population. Should plants of this type meet with success, the great dams built on inland waters may be as helpful to rockfish and fishermen as those near coastal waters have been harmful.

The biology of shad, river herrings, striped bass and other anadromous fishes of such great importance for food and sport is still shrouded in mystery. We have yet to learn what forces impel them to make their migrations and how they are able to return to the streams in which they were born. We have learned, however, some of the harmful effects of civilization and must strive to take reasonable corrective action. In other cases we do not know what to do because possible effects of such contaminants as heat, radioactive wastes, detergents, herbicides and pesticides and of sublethal concentrations of industrial and domestic wastes are as yet not well known. Clearly what is needed is greater information on which to base future management activities. We must also attempt to adapt these fishes to great environmental changes that we are now making or vice versa. Fortunately life is tenacious and the fish have sometimes demonstrated an ability to help themselves.



Bird of the Month:

The Sanderling

By DR. J. J. MURRAY

Lexington, Virginia

SPRITE of the water's edge, so dainty and so ethereal, one almost thinks of the tiny sanderling as Shelley did of the skylark, "Hail to thee, blithe spirit! Bird thou never wert." So lightly twinkle its feet at the changing water line, so graceful are its movements on the sand or in the air, that it seems more fairy or flash of light than earthly creature.

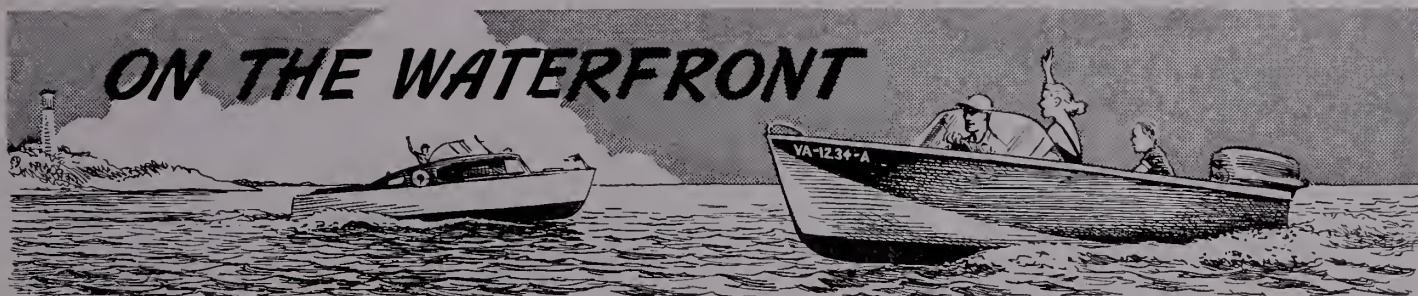
Nevertheless the little sanderling is quite at home on the land, or rather on that bit of changing sand that is neither land nor water but something of both. It feeds where it never dare be still. That food must be fresh and tasty, still wet from the ocean's brine, sand fleas or other minute crustaceans, little worms or insects. The birds patter down just behind the receding waves to pick up food from the wet sand, then turn just as the waves are ready to turn and trot back to safety. If they should get too far, they have only to rise on quick wings above the surf. What a contrast between the bit of flesh and feathers and the mighty waves that could crush a boat! The little birds are always on the razor's edge of danger but never caught by the foaming water.

It seems natural to speak of sanderlings in the plural. They are such sociable little fellows that you rarely see one alone. As you follow a flock along the beach the birds keep running lightly ahead, just out of reach, until at last they rise and wheel past you out over the surf, to return to the chosen feeding place.

The sanderling sometimes feeds on mud flats, but it does not like to get far from its white clean beaches. It is practically never seen inland. One of the more unusual Virginia records is that of a sanderling we found one August day in 1950 at a farm pond in Rockbridge County, with the sea 250 miles away and the blue mountains in sight on all sides. When the nervous killdeer flew up it went with them, landing with them out on the open pasture and even in a plowed field. It has also been seen at Richmond, Alexandria, Charlottesville, and Saltville.

This little bird is the whitest of our sandpipers. Of its Latin name, the first part, *Crocethia*, means "associated with pebbles," in reference to its nesting sites on stony islands, while the second part, *alba*, refers to the whitish color. One of its common local names is "whitey." In spring plumage the bird is of a rusty color, while in fall and winter it is very light. At any season it may be known by the long and very white stripe through the wing. The bill and stout legs are black.

The sanderling is practically cosmopolitan in its breeding range, nesting round the whole Arctic circle on barren shores and islands. It winters on coasts throughout most of the temperate parts of the world. Along the Virginia shore it is abundant in its migrations in late spring and early fall. Small flocks are always present in winter to add a touch of life to our beaches.



Boaters Warned To Be Careful

The trend of boat accidents in Virginia has taken a turn for the worse in 1961. Although only four accidents have been reported during January and February this year, all four involved drownings. One accident resulted in two deaths, the other three involved one death each.

Also significant was the fact that four of the deaths resulted from passengers falling overboard.

Five persons died in the 49 boating accidents in Virginia from July 1 to December 31, 1960, and five persons have already lost their lives in the four reported accidents the first two months of 1961.

Coast Guard Auxiliary Presents Training Programs

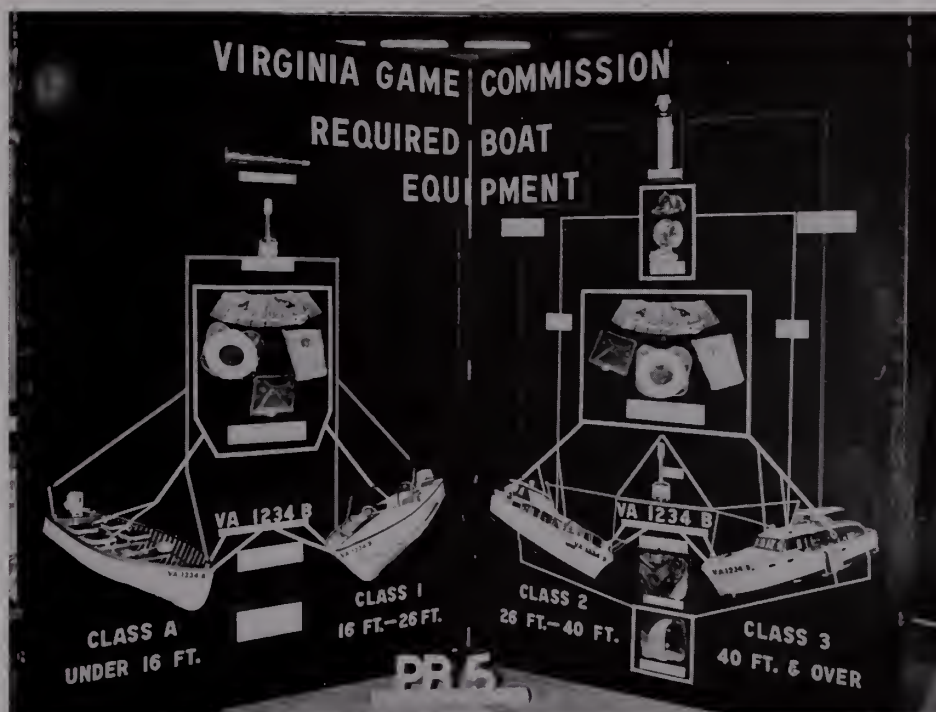
U. S. Coast Guard Auxiliary Flotilla 51 in Richmond is conducting its annual public instruction training program at the Branch House again this year. The weekly classes extend from February through April 25 and cover a variety of subjects in the boating field. Some of the class topics are rules of the road, aids to navigation, seamanship, charts, compass, piloting, safety and first aid. Several hundred people attend these courses headed by F. R. Brauer, Training Officer for Flotilla 51.

Portsmouth's U. S. Coast Guard Auxiliary Flotilla 58 is conducting a free eight-lesson course in safe boating which began on February 23. The classes, under the direction of Commander Harold W. Graham, are being held at the Coca-Cola plant in Suffolk.

Other similar courses are being held at Granby, Maury High School in Norfolk, at Yorktown High School, and at Lynnhaven.

Who Is Responsible For Obtaining The Boat Number?

The responsibility for having a boat number rests upon the person or persons who own the boat. This does not include a person who rents or leases a boat from another person, or one who holds a mortgage on a boat.



This 4- by 6-foot display board is available at the Game Commission office free of charge. The interested group must pick it up and return it. The board shows all the required boating safety equipment needed on the four classes of boats in Virginia.

Remove Those Coast Guard Numbers

Some Virginia boaters are not removing their old Coast Guard numbers after registering their boats with the State. This is a violation of Virginia law.

Boaters are wrong in assuming that they have complied with the law by merely registering their boats with the State. They are required to remove any old number and to display the new State registration number. The law states that no other number may be displayed on either side of the boat's bow.

Smiles

Game Commission officials have had a few smiles from the many thousands of boat regulation queries they receive. One boater wrote: "If possible, please give me an easy number to remember. I wouldn't mind waiting a few days for one." Another request for registration noted: "This is my third set of numbers—the first boat was too luxurious, second boat leaked, and the third one—well, I hope this one works."

Wooden-Hulled Outboards Most Popular in Virginia

Despite the recent surge in popularity of plastic and aluminum boats, wooden boats still far outnumber all other kinds registered in Virginia.

A report by the Game Commission reveals that 27,140 of the 35,620 registered motorboats in Virginia are made of wood. Some 3,843 are made of plastic and 2,289 are constructed of aluminum.

Outboard motorboats outnumber inboards in Virginia, with 29,406 of the 35,620 registered boats being of the outboard type, the report showed.

Boating Is Big Business!

During 1960, \$2,525,000,000 was spent in the United States for new and used boats, insurance, docking, maintenance, launching, storage, repairs and boat club memberships.

Of this amount, \$442,000,000 was spent for the purchase of new outboard motors and boat trailers in 1960. It is estimated that 7,500 outboard motors were sold in Virginia last year alone.



Commission Photo by Kesteloo

Six dens of Cub Scout Pack No. 890 in Chesterfield County participated in a bird feeder contest this winter. The contest was sponsored by the Southampton Recreation Association. Contest chairman Murry Kalen said that 35 Cub Scouts entered the contest and prizes were awarded in all six dens. Game Commission Education Division Chief J. J. Shomon and Audio Visual Section Chief Leon G. Kesteloo judged the feeders as part of a program on conservation on January 27.

Essay Contest Ceremonies Planned

Winners of the 14th Annual Wildlife Essay Contest will have a full day on May 12. The awards ceremony in the Senate Chambers of the State Capitol at 10:30 a.m. will highlight the activities as Governor J. Lindsay Almond, Jr. presents the cash and scholarship awards to the winners.

Following the awards, the winners will be given a guided tour of Richmond by chartered bus, stopping at the White House of the Confederacy, Battle Abbey, and other shrines.

A luncheon at the John Marshall Hotel will wind up the formal ceremonies.

School principals will be notified as soon as winners are selected from the 8,845 essays received at the Game Commission office.

Easter Eggs

The use of eggs in the celebration of Easter harks back to ancient pagan rites in which the egg was a symbol of new life or resurrection. This connection of eggs with magic and mysticism is understandable. An egg doesn't eat and it doesn't move. To all outward appearances it just sits there—a thing. Then suddenly, out of it comes an eating, breathing, wiggling new creature.

Goin' Fishin'?

Trout season opened on April 1, and all fun-loving, adventure-seeking, red-blooded Virginia boys and girls should plan to be on one of the 128 stocked mountain streams this month.

Young folks under 16 years of age can fish without a license in Virginia. Better take advantage of this while you are under 16 since you can't do it again until you are over 70.

Usually it is best to go with someone older who knows a lot about trout fishing. You can learn something from him just by watching out of the corner of your eye as you pretend to fish like the pro that he really is. Trout fishing takes a lot of skill that can't be acquired on the first trip. With patience and some luck, it won't be long before a nice trout hits your lure. There will be more than 900,000 trout out there to catch, so go to it!

Teenager Catches Biggest Fish

Teenager Terry Bareo of Virginia Beach won the trophy for the largest white perch caught in Virginia during 1960. This award was one of 15 given at Old Point Comfort March 20 by the Virginia Saltwater Fishing Tournament. Hal Lyman, of Boston, publisher of the *Saltwater Sportsmen* magazine, presented the trophies.

Millionth Graduate of National Hunter Safety School

The country's largest outdoor safety education program recently graduated its one millionth student. The honor of being the millionth graduate of the National Rifle Association's Hunter Safety Training Program went to Samuel L. Cicero, 20, of Niagara Falls, New York.

Appropriately enough, the honor of graduating the millionth student went to the state which, in 1940, pioneered the gun safety education of young hunters before they took to the field for their first hunt. Since that time 28 other states have followed the lead of the Empire State by adopting the same program either by legislation or on a volunteer basis. That the program has been a tremendous success is attested by the fact that according to "Accident Facts," published by the National Safety Council, "national public firearms fatalities" have dropped 22 percent in ten years.

The present nation-wide program was born in New York in 1949 when the state legislature enacted a law requiring youngsters under sixteen years old to take and pass a course in safe gun handling before being eligible to obtain their first hunting license.

Good Books

Two new conservation books of notable value have appeared on the book market during the past year. The first, *Things to Do in Science and Conservation* by Byron Ashbaugh and Muriel Beusehlein, is a book about resources and projects involving them. Each chapter presents a basic resource which in turn is considered with several approaches. They include the concept, how to demonstrate it, projects and questions. The Interstate Printers and Publishers, Danville, Illinois, 157 pp. \$2.50. Ages 12-up.

The second book, *Teaching Science Through Conservation* by Martha E. Munzer and Paul F. Brandwein, is a text for science classes with a new approach. It deals with the things a science teacher can do to affect directly the wisdom with which resources are used and developed. McGraw-Hill Book Co., 420 pp. \$7.50. Junior and Senior High School.



Governor Almond Urged Virginians to Observe Wildlife Week

As a long-time sportsman and wildlife conservation enthusiast, Virginia's Governor J. Lindsay Almond, Jr., on March 18, urged all Virginians to

- acquaint themselves with the problem of wildlife conservation,
- devote special support to programs affecting the protection and wise use of our public lands; and
- join in the observance of National Wildlife Week, March 19-25, 1961.

The text of Governor Almond's special message on Wildlife Week—the theme of which was "Multiple Use—Balanced Conservation Planning for the Future"—included the following statements:

"The people of Virginia are dependent upon the natural resources to sustain life and contribute to the growth and development of the industry, commerce and agriculture of the Commonwealth. It is now recognized that open spaces are vitally important to the physical and mental health of our citizens."



Dixie Shumate



Jack Hoffman

Fish Division Promotes Two

Dixie Shumate, Sr. of Marion has been named fish hatchery supervisor and Jack M. Hoffman of Roanoke has been made research and management supervisor, Robert G. Martin, Game Commission fish division chief, announced February 24.

Shumate, 60, has been with the Game Commission for nearly 30 years, starting in 1931 as a mechanic-truck driver. His

new job involves the field supervision and coordination of all fish propagation facilities and activities.

Hoffman, 38, a native of Missouri, has been with the Game Commission for nearly six years as a fish biologist. His new duties include field supervision and coordination of fish management and research activities statewide.



Commission Photos by Harrison

The Virginia Commission of Game and Inland Fisheries has purchased and turned over to state game wardens 22 new four-door sedans in an experiment to determine whether or not commission-owned vehicles can be operated with less expense to the commission than privately-owned cars which wardens have used in the past. A distinctive decal (see inset) similar in design to the commission's standard information sign identifies the vehicles. Wardens in the Law Enforcement Division's George Washington District (Caroline, Culpeper, Fairfax, Gloucester, Lancaster, Loudoun, Louisa, Northumberland, Prince William, Spotsylvania, Stafford and Westmoreland counties) picked up their cars on March 3. Wardens in the Daniel Boone District (Buchanan, Dickenson, Giles, Lee, Pulaski, Russell, Scott, Tazewell, Wise and Wythe counties) made the long trip from the far southwest into Richmond on March 17 to receive their new automobiles and receive instructions on their use.

Teacher Scholarships Available

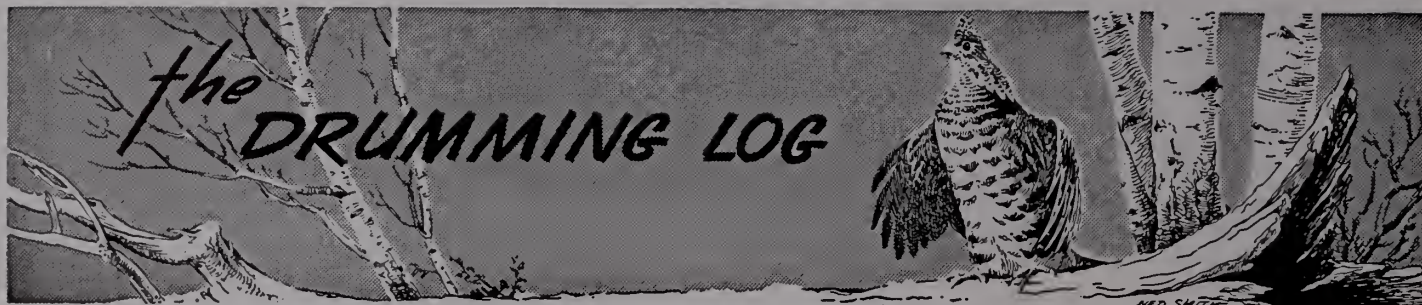
Short courses dealing with the conservation of Virginia's natural resources will be offered teachers again this summer at three Virginia colleges.

The Virginia Resource-Use Education Council will again sponsor these courses.

Subjects to be taught during these three-week courses include geology, soil, forestry, and wildlife. Three hours credit is given for completion.

The first course will be held at Virginia Polytechnic Institute, Blacksburg, June 15-July 1; then at Virginia State College, Petersburg, June 26-July 14; and finally at The College of William and Mary, Williamsburg, July 31-August 18.

A limited number of scholarships to cover tuition, meals, lodging and laundry will be made available to public school teachers from funds provided by several interested organizations. All public school teachers are eligible and should apply before May 1 to the Virginia Resource-Use Education Council, P.O. Box 1642, Richmond 13, Virginia.



Revised "National Forest Vacations" Booklet Now Available

"National Forest Vacations," currently one of the U. S. Department of Agriculture's most popular publications, is out now in revised form with a new cover, new pictures, and new text to keep pace with the steady expansion of vacation opportunities on the 181 million acres of national forest land.

The new edition emphasizes the national forest recreation potential, in keeping with the increased development and rehabilitation of camping and picnicking facilities under the Forest Service's five-year recreation program, Operation Outdoors, which started July 1, 1957.

One of the revised sections in the booklet is detailed "Guide to Your National Forests," a State-by-State description of all national forest areas with attractions, facilities, and nearby towns listed. This has been completely rewritten and brought up to the minute. New roads, camping sites, picnic grounds, and boating and swimming facilities are detailed.

Two noteworthy additions to the revised 66-page booklet are a section detailing what to do if lost in the woods, and a section explaining the difference between national forests and national parks.

A single copy of "National Forest Vacations" may be obtained from the Forest Service, U. S. Department of Agriculture, Washington 25, D. C.



Meriweather Lewis downed this unusual 165-pound, 8-point albino white-tailed deer on his own property near Clarksville in Mecklenburg County January 2 while hunting with his wife and son.

National Forest Wilderness and Recreation Developments Expanded in 1960

Development of additional family units for camping and picnicking, expansion of the recreation research program, and additions to the wilderness system are a few indications of the progress made in national forest recreation during 1960, the U. S. Department of Agriculture announced.

"Recreation visits to the National Forests have been increasing by more than 12 percent a year," Richard E. McArdle, Chief of the Forest Service, said. "Last year more than 90 million recreation visits were reported," he stated.

Free Folder Lists Outdoor Films

A list of outstanding motion pictures of interest to sportsmen's organizations has been prepared by the Sportsmen's Service Bureau, 250 East 43rd Street, New York 17, New York, the Wildlife Management Institute reports. The folder gives the name and address of the sponsor-producer of each film named, suggests outlets for other specialized and general-type recreation films, and presents several tips that sportsmen's groups should find helpful in making film showing arrangements. The folder is free—ask for "Free Films for Sportsmen."



Members of the Bi-County Sportsmen's Club of Danville distributed game food donated by local merchants throughout Pittsylvania and Halifax counties on February 4 to help snow-bound wildlife.

Just a Suggestion*

Each autumn on the opening day of the duck hunting season thousands and thousands of hopeful sportsmen are afield. These sportsmen are the most important single force in conservation today. The hunter or fisherman who buys a license so he can legally kill birds and other animals man for man does more for wildlife than many birders or nature lovers. Every duck hunter now pays \$3.00 for a duck stamp plus 11% federal tax on guns and ammunition, plus \$3.00 for his state license. This is the money that buys our marshlands and does the greatest part of our conservation work. How much of this have you contributed?

Are you aware that our widespread network of wildlife refuges was purchased almost entirely with funds collected directly or indirectly from sportsmen? The annual budget of the Michigan Conservation Department is about 15 million dollars. This money is used to manage our renewable wildlife resources. Forty-nine per cent of this money comes directly from the sportsman through the sale of licenses, stamps, and the like.

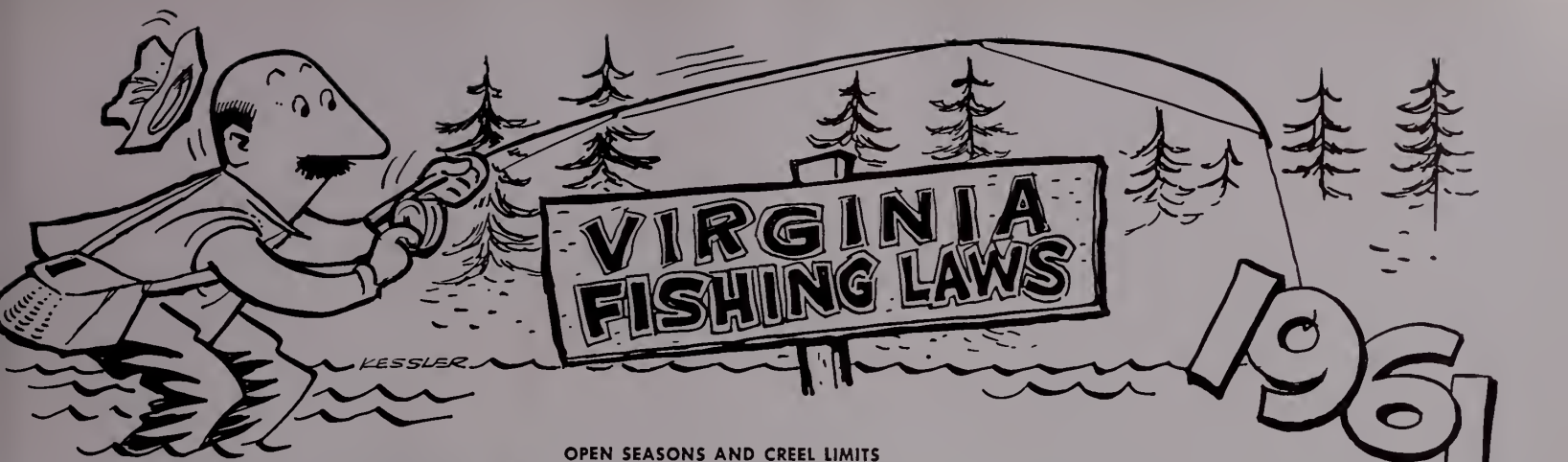
Don't you think that it would be most appropriate for non-hunters to contribute to this important work by buying a license and/or a duck stamp? We enjoy the birds as much as the hunter does; why not do as much as he does to aid in their conservation.

—ROBERT S. BUTSCH, PRESIDENT
Michigan Audubon Society

*Reprinted from the Jack Pine Warbler.



Warren Messick, Roanoke attorney, center, poses with his hunting companions, John Sanford and Sanford's son, Larry, and the pheasants they bagged recently at the Holiday Hotel Game Preserve in Reno, Nevada.



OPEN SEASONS AND CREEL LIMITS

GAME SPECIES*	CREEL LIMIT	OPEN SEASONS
Largemouth, Smallmouth, Spotted, Striped Bass	8 daily in aggregate	CONTINUOUS OPEN SEASON in ALL WATERS EAST of the Blue Ridge Mountains, in ALL IMPOUNDED WATERS STATEWIDE, and in the following waters WEST of the Blue Ridge Mountains: James River; New River; Little River between Radford City Dam and New River. JUNE 20-APRIL 30 OPEN SEASON in ALL WATERS WEST of the Blue Ridge Mountains except those named above.
Pickereel, Walleye	8 daily	
Rock Bass	15 daily	CONTINUOUS OPEN SEASON as above; also in Alleghany, Bath, Botetourt, Clarke, Frederick, Highland, Page, Rockbridge, Rockingham, Shenandoah, and Warren counties. JUNE 20-APRIL 30 OPEN SEASON IN all other waters.
Crappie, Bluegill, Sunfish	25 daily in aggregate	
White Bass	25 daily	CONTINUOUS OPEN SEASON STATEWIDE
Brook, Brown and Rainbow Trout**	8 daily in aggregate	

In all waters stocked with trout, OPEN SEASON 12:00 NOON APRIL 1-DECEMBER 31 from one hour before sunrise (after opening day) to one hour after sunset daily, with the following exceptions: The season will be closed from May 1 through May 5 in Alleghany, Augusta, Bath, Bland, Botetourt, Buchanan, Craig, Dickenson, Giles, Highland, Lee, Rockbridge, Rockingham, Russell, Scott, Smyth, Tazewell, Washington, Wise and Wythe counties. The season will be closed from May 8 through May 12 in Albemarle, Amherst, Bedford, Carroll, Floyd, Franklin, Frederick, Grayson, Greene, Henry, Madison (except in the Rapidan and Staunton Rivers and their tributaries upstream from a sign at the lower Shenandoah National Park boundary), Montgomery, Nelson, Page, Patrick, Pulaski, Rappahannock, Roanoke, Shenandoah, and Warren counties. Seines and nets, snagging, feeding of trout, and fishing with more than one rod, one line, and one hook are prohibited in waters stocked with trout. Artificial lures with more than one hook are permitted. Unlawful to fish in a stocked trout stream after the daily creel limit of trout is obtained.

* Unlawful to use game fish of any size for bait.

** Artificial lures only may be used to take trout in Little Stony Creek beginning 330 yards above the Woodstock Water Supply Dam and in Passage Creek above the bridge at the road leading to Smith Creek; see also Shenandoah National Park and Lake Shenandoah exceptions.

No minimum size limit except on trout in Shenandoah National Park (9 inches) and on striped bass statewide (12 inches).



A fishing license is required to take or attempt to take any freshwater fish.

Only persons not required to have a license are: (1) residents under 16 years of age or 70 years of age and over; (2) landowners, their spouse and children, and tenants who reside on the property and have the written permission of the landowner, on the landowner's property only; and (3) those persons fishing as guests in private ponds individually owned. A resident is a person who has resided in the city, county, or state for 6 consecutive months immediately preceding date of application for license. In addition, members of the U. S. Armed forces on active duty stationed in Virginia, students attending bona fide schools in Virginia, and legal voters may purchase, upon proof of status, resident fishing licenses in the county in which they are stationed, located, or registered.

LICENSE FEES

(Obtain licenses from county circuit court clerks, city corporation court clerks, and other authorized agents.)

County or city resident to hunt and fish in county or city of residence	\$ 2.00
State resident to fish only	3.50
Nonresident to fish only	10.00
Nonresident interstate (North Carolina and Virginia) to fish in Kerr Reservoir 3 consecutive days	1.00
Resident or nonresident, to fish 3 consecutive days in public and private impounded waters statewide and in all public waters not stocked with trout	1.50
State and county resident, to fish for trout in streams stocked with trout, in addition to regular fishing license	1.00
Nonresident, to fish for trout in streams stocked with trout, in addition to regular fishing license	5.00
Resident or nonresident, to fish for trout in Shenandoah National Park 3 consecutive days (not required of those having state or appropriate county licenses)	3.00
National forest stamp, required in addition to license, to hunt, fish, or trap on national forests	1.00
County dip net license to take shad, herring, and mullet above where tide ebbs and flows	1.00

REMEMBER:

Fishing in inland waters must be by angling with a hook and line or rod and reel, held in the hand. (See exceptions for non-game fish.) A hand landing net may be used to land fish legally hooked in all waters.

Any person who fishes on another's property must have the landowner's permission to do so, except on those private trout streams along which signs have been posted indicating the waters which are open to public fishing.

No species of fish taken in inland waters may be sold except under special permits provided by law.

Baltimore minnows (goldfish) may not be used for bait in public impoundments.

Sunday fishing is prohibited in the counties of Alleghany, Bath, Bland, Botetourt (except James River and Carvins Cove), Craig, Giles (except Mountain Lake and New River), Highland, Rockbridge, Surry (in Blackwater River and Cypress Swamp) and in Silver Lake in Rockingham. Sunday fishing in Augusta County requires the written permission of the landowner.

LOCAL EXCEPTIONS

Commission Controlled Ponds: Fishing hours are one hour before sunrise to one hour after sunset; gasoline motors, gigging, seining of minnows, and shooting over ponds are prohibited; overnight camping is not permitted on Commission owned or controlled property.

National Forests: On the Big Levels Wildlife Management Area in Augusta County, the following special regulations apply: (a) Coles Run is closed to fishing; (b) Fishing is permitted in Sherando Lake under state regulations covering waters stocked with trout except that, between May 15 and Labor Day, it is open to fishing only outside the swimming area and between the hours of 8:00 a.m. and 8:00 p.m.

Shenandoah National Park: Open to trout fishing only, from the opening of the state-wide trout season to one hour after sunset on October 15 and from one hour before sunrise to one hour after sunset on intervening days. Natural bait is prohibited; only artificial lures with single hooks may be used; minimum size limit 9 inches. "FISH FOR FUN" exception: It is lawful to fish for trout using only artificial lures with single BARBLESS hooks in the Rapidan and Staunton Rivers and their tributaries upstream from a sign at the lower Shenandoah National Park boundary in Madison County. The season: From the opening of the statewide trout season through October 15. All trout caught in these waters must be immediately returned to the water. No trout may be in possession at any time in this area.

Blue Ridge Parkway: Fishing hours are from sunrise to sunset. No live or dead fish or fish eggs may be used as bait, and digging for worms is prohibited.

John H. Kerr Reservoir: State resident and nonresident fishing licenses legally obtained from the duly authorized representative of either the Virginia Commission of Game and Inland Fisheries or the North Carolina Wildlife Resources Commission shall be accepted as legal authority to fish only by means of rod and reel or hook and line in the waters of John H. Kerr Reservoir (Buggs Island Lake) lying east of U. S. Route 15 highway bridge near Clarksville, Virginia to the reservoir dam, including all tributary waters lying in Virginia which are accessible by boat from the main body of the reservoir, or from sub-impoundments lying east of the said highway bridge. Other fishing licenses, permits, or privileges of either state will not be reciprocally honored in this area.

Silver Lake in Rockingham County: trout fishing regulations apply. It is lawful, however, to gig and take by bow and arrow carp only from 7 a.m. to 10 p.m., week days from May 11 through August 10.

Lake Shenandoah in Rockingham County: creel limit on trout 5 daily.

Walker's Dam, Chickahominy River: No one may take any fish on or within 500 yards below the dam at Walker's on the Chickahominy River in Charles City County except with rod and reel and hand line using baits or lures with not more than one hook and not more than one such bait or lure to each line.

LAWS PERTAINING TO THE TAKING OF NON-GAME FISH

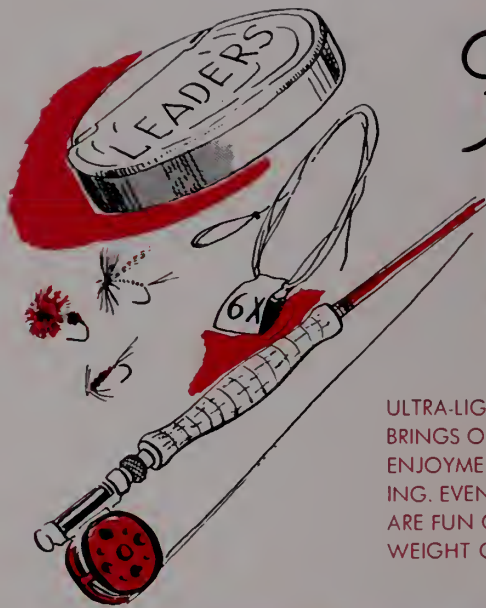
Trot lines or set poles may be used statewide, using any bait except dead or live minnows, for the purpose of taking non-game fish and turtles, except in waters stocked with trout and in the Shenandoah River and its tributaries.

Carp and gar may be taken with bow and arrow in all public waters except those stocked with trout, from March 1 through October 31 during daylight hours. Cross bows and poisoned arrows are prohibited.

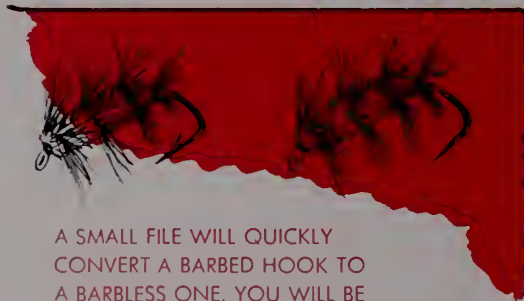
Non-game fish may be taken at any time by snagging, grabbing, snaring, gigging, or striking iron in all waters of the following counties (except public impoundments and those waters stocked by the Commission): Amelia, Appomattox, Brunswick, Campbell, Charlotte, Cumberland, Dinwiddie, Greenville, Halifax, Louisa, Lunenburg, Mecklenburg, Nottoway, Pittsylvania, and Prince Edward.

Fish for Fun!

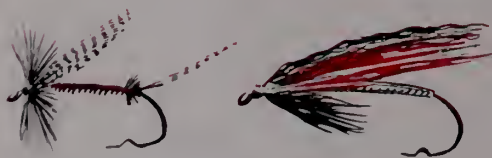
THIS RAINBOW HAS GIVEN THE ANGLER A GOOD BATTLE. SLACK LINE WILL ALLOW THE TROUT TO FREE HIMSELF TO FIGHT ANOTHER DAY.



ULTRA-LIGHT TACKLE BRINGS OUT THE FULL ENJOYMENT OF FISHING. EVEN SMALL TROUT ARE FUN ON FEATHER-WEIGHT GEAR.



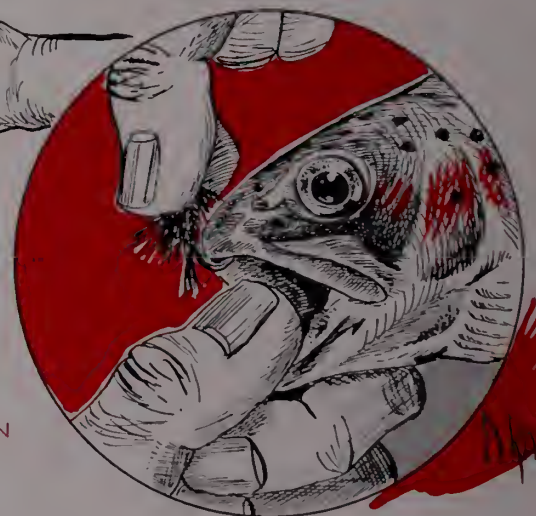
A SMALL FILE WILL QUICKLY CONVERT A BARBED HOOK TO A BARBLESS ONE. YOU WILL BE SURPRISED AT HOW FEW FISH YOU LOSE WITH THESE HOOKS.



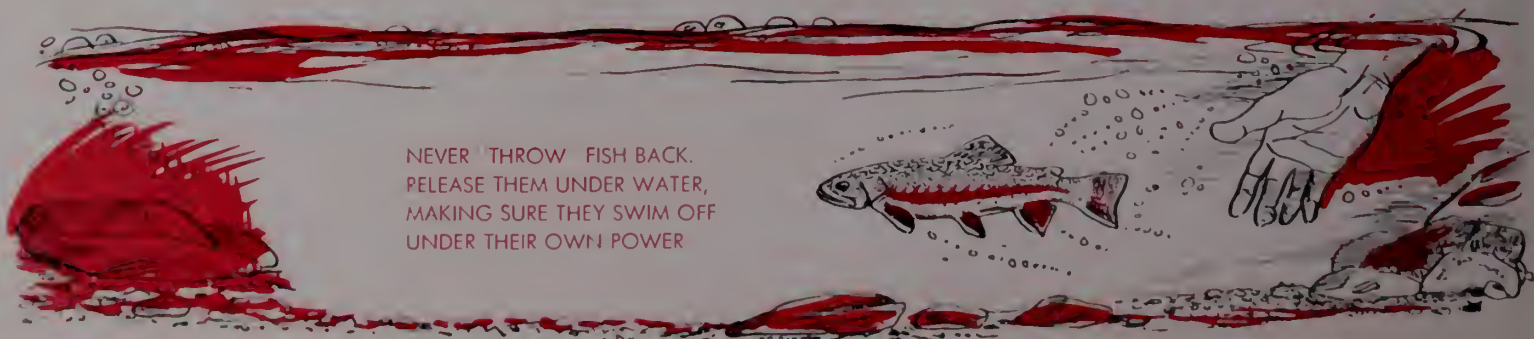
COMMERCIAL "BARBLESS" HOOKS ARE ALSO AVAILABLE. RELEASING FISH AT THE END OF THE FIGHT IS EASY WITH THESE FLIES.



DON'T DO THIS! IF PRESSURE FROM THE "BEER CAN" GRASP DOESN'T KILL THIS TROUT, INFECTION FROM THE BROKEN MUCUS LAYER MAY.



EASY DOES IT IF YOU MUST RELEASE THE FISH MANUALLY. GENTLY GRASP THE LOWER JAW AND EASE THE HOOK OUT.



NEVER THROW FISH BACK. RELEASE THEM UNDER WATER, MAKING SURE THEY SWIM OFF UNDER THEIR OWN POWER